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DR. MARCELO T. DE ALVEAR, PRESIDENT-ELECT OF ARGENTINA.

BULLETIN
OF THE PAN AMERICAN UNION

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DR. MARCELO T. DE ALVEAR, PRESIDENT-ELECT OF ARGENTINA

ON APRIL 2 of this year Dr. Marcelo T. de Alvear was elected president of Argentina for a term of six years, beginning October 12, 1922.

Dr. Alvear, who has had a long and distinguished public career, was born in Buenos Aires on October 4, 1868. After finishing his preliminary studies, he entered the University of Buenos Aires, where he brilliantly completed the course, receiving his degree at the early age of 22. As a member of the Radical Party, he was distinguished for his intelligent action along modern social lines. Heir to an illustrious patronymic and equally distinguished tradition of service, being himself the possessor of a liberal and unselfish spirit, Dr. Alvear added fresh laurels to his inheritance by his championship of democratic ideals. In 1912 he was elected to the National Congress as deputy for the city of Buenos Aires, and on the expiration of his term he was reelected by the Province of the same name. Dr. Alvear's record in Congress was of a high character, and it is especially to be remembered that it is chiefly to his initiative and untiring energy that the country owes the enactment of the tenure law for public employees and the cheap housing law.

In 1916 Dr. Alvear accepted the post of minister of Argentina in Paris. The skill he displayed in the performance of his difficult duties during the international crises which followed is well known. His diplomatic labor of *rapproachement* between the two countries earned for him the unstinted approval of his Government and his fellow citizens, as well as the sincere gratitude of the French officials.

Dr. Alvear is descended from a noble Spanish family. His great-grandfather was the renowned Admiral Diego de Alvear y Ponce de Leon, whose notable services in the eighteenth century were rewarded by the title of Grandee of Spain, conferred by the Crown. Later the King entrusted to the Admiral the mission in Argentina of adjusting the boundary dispute which had arisen between Spain and Portugal. The Admiral's son, Gen. Carlos A. de Alvear, military hero and president of the First Constituent Assembly, is recognized as the moving spirit in Argentina's abolition of slavery, entailed estates, and the Inquisition. After reorganizing the army, General Alvear later became more widely known outside his own country because of his services as envoy extraordinary to the Liberator, Bolívar, and as minister plenipotentiary to the United States.

The father of the new president-elect was Sr. Torcuato de Alvear, remembered for his excellent administration as mayor of Buenos Aires. To him are due not only the organization of the public offices and of the tax collection services, but also the artistic and architectural splendor of the Argentine capital, transformed by Sr. de Alvear's vision into one of the most beautiful cities in the world.

To Dr. Marcelo T. de Alvear, president-elect of Argentina, the PAN AMERICAN BULLETIN presents its most cordial congratulations and good wishes for the success of his administration, and for the increasing prosperity of the great nation whose destinies he will direct for the next six years.

COAT OF ARMS OF ARGENTINA.

THE EVOLUTION OF CALENDARS AND HOW TO IMPROVE THEM[1]

By Moses B. Cotsworth, F. G. S., F. S. A., F. C. A.

(*Secretary-Treasurer, International Fixed Calendar League.*)

THE imperfect calendar used to measure daily progress through the year is the most useful and interesting method evolved by our ancestors to record the most propitious dates to sow seeds in order to obtain the most abundant harvests and, in general, to regulate yearly activities and affairs.

Plate 1.—THE FOUR QUARTERS OR PHASES OF THE MOON.

From these the now universal week was derived because men inevitably had to calendar by the day, and found the 7.38 days quarter of the 29.53 days cycle of the moon too awkard for the use of settled communities. Primeval men counted their age by moon-cycles, because the 365-day solar year was far too long for their primitive minds to envisage, and direct records of the sun's course were not then possible.

Its early history has never been written, and it is only recently that, due to research, it has been demonstrated that the prehistoric ancestors of all the great nations inevitably counted periods of time longer than one day by the moon—as evidenced by Biblical record and Plates 1 and 2 of this article—until Noah adopted the Egyptian 30-day month and the use of "5 equal months of 30 days each," the latter being simpler and safer in the matter of rationing tribal sup-

[1] Copyright, 1922, by Moses B. Cotsworth.

plies than the earlier alternating single-moon counts of 29 and 30 days.

In 1908 I found Sarcee and other North American Indians justly proud of the fact that long before the coming of the white man they had advanced from moon counts by stages of 5 to 6, and thence to 12 months count of 30 days each, all tallied by the 5 bundles of sticks shown in Plate 3.

The Romans, Arabs, and some minor races who continued 29 and 30 day groups of 5 moons count (misnamed years) later expanded their count to 10 moons, totaling 295 days in their so-called years. In 713 B. C. Numa, the Roman Caesar, added January and February, thus making their 12-moon calendar 354 days long. During 433 B. C. the Romans began to intercalate the thirteenth moon of the Metonic Cycle, as the Chinese and other races still continue to do.

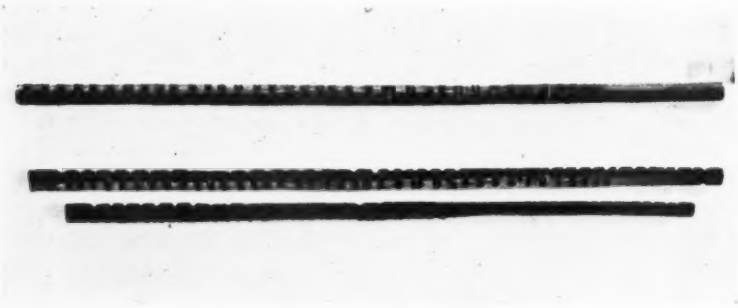


PLATE 2.—MOON STICKS, FIJI ISLANDS.

These moon sticks were used in the Fiji Islands to tally moons, which early men tallied as "years." These were collected by the first British governor of the Fijis, who hired servants for three years. As they did not understand the year's length, the interpreter told them by finger counts that they were hired for 36 moons. But the governor had to pay them for the thirty-seventh moon (notched separately to the right) because there were 37 moons in the three years of his administration.

But the more practical Hebrew patriarchs by more careful and exact observation of the sun's seasonal points at sunrise were led to drop their 5 equal months, totaling 150 days, for the more seasonable 6-month year, which Jacob tallied by his three rows of stakes lined to sunrise on the longest, shortest, and equal day and night points in order to obtain two increases of lambs and kids yearly, as is now done in England and British Columbia, where both grazing and weather conditions permit.

As sheep and goats were not only the means of exchange but the chief wealth of Jacob and his descendants, who traded upon the facts that these animals carry their young only 5 months and can be made to breed almost every 6 months, Jacob's descendants naturally continued his method of 6 months count until Moses, at the Exodus, gave them the more advantageous Egyptian calendar year. And it is a significant fact that after the Exodus the length of life of Bible

worthies accords with our own. Moreover, when we compute the recorded ages of earlier patriarchs into true years on the basis of the 1, 5, or 6 months calendars, which were then in use, we find that they lived only the normal number of years, as the following table of typical readjustments shows:

Methuselah's 969 "years" were moons, totaling 79 true years.
Abraham's 175 "years" of 5 months totaled 72 true years.
Jacob's 147 "years" of 6 months totaled 73 true years.

The various stages of this natural evolution are portrayed in Plate 4. They are typical of the similar expansion from 1 to 6 months by which ancient peoples progressed in the evolution of their calendars.

HORIZON METHOD OF OBSERVING THE SEASONAL POINTS OF SUNRISE.

The sunrise system was man's next step toward dividing the year into seasons. It was the direct result of the observation of the tribal seers, who noted that the sun rose at different seasons from behind different mountains or trees, as diagrammed in Plate 5.

The ancient use of this method is evidenced by Plate 6, in which the Carthaginian priest is shown taking an observation across the central pivot point to the sun, which is rising behind the middle distant stone, which point was erected to locate sunrise on March 21, when the sun rises true East, day and night are equal, and their year began.

The horizon curve in Plate 7 is typical of the best form of Druidical sunrise observatory, showing the three essential monoliths standing near my old home at York, England. These monoliths mark the curved direction of the three season-dividing sunrise points, denoted, as *S*, *E*, and *W*, when viewed from the center of the horizon's circle, in line with that center's pivot point, as indicated by the priest represented in Plate 6.

Sunrise on the longest day (June 21) was marked by the North-East monolith for *S*, the summer solstice, as proved by the Stonehenge North-East obelisk, across which sunrise on that day shines direct to the pivot point erected in the center of that great circular observatory. (Plate 8.)

The diagram, in Plate 9, showing the primitive style of Jacob's observatory, indicates by *S* and *W* the less widely apart sunrise points on the longest and shortest days, in countries nearer the Equator.

All primitive observers of these seasonal sunrise points tried to count the days between those marking the longest and shortest days, but found that count too difficult to verify, because the sunrises north of east between March 21 and September 23 number 186, and south of east between September 23 and March 21 only 179; since the spring, summer, autumn, and winter seasons are respectively 92, 94, 90, and 89 days long.

These erratic differences baffled the observers in their tally of seasonal days all the more because for nearly two weeks at both the northeast and southeast they could not perceive perceptible difference in the sunrise points, and the fact that there were 186 days in the summer half year and only 179 days in the winter half year—a difference of 7 days or quarter of a moon—greatly puzzled the superstitious ancients.

Eventually, by necessity and experience, they were led to focus their observations on the true East line which Jacob located by his last row of poplar stakes, in finding the true breeding seasons for

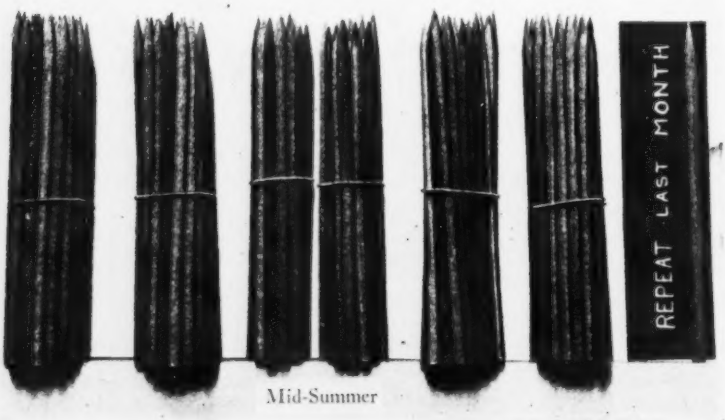


PLATE 3.—THE FIVE-BUNDLES CALENDAR USED BY THE AMERICAN INDIANS.

The 5-bundles calendar used to count human longevity 3,000 years ago—in mistranslated "years" only 5 months long, was next extended to 6 months and thence to 12 months. One bundle to tally equal 30-day months had previously replaced uncertain 29 to 30-day moons. The stick at the end, drawn each morning from the monthly bundle of 30, denotes the passing day.

The North American Indians began their year on the day the first spring thunder brought rain, when the medicine man began daily to tally a stick from their first bundle of 30.

This 5-bundles form of calendar, having 30 sticks for 30 days in each of their always equal months, was probably the earliest style of record used by our remote ancestors to count the days that were gone, and the more important coming days when drawing near to their seasons for hunting and sowing seeds. The 5 bundles of 30 twigs each appear to have been the form most naturally used by the Bible patriarchs, from Noah to Abraham and Isaac. Next Jacob apparently brought the sixth month into use, by again using his last bundle, as the Chinese and other races using lunar calendars have continued to do when adding the thirteenth month. The Red Indians of Northwest Canada still secretly use the 5-bundles form of calendar. They always split the middle bundle into two of 15 each, to locate midsummer and midwinter, as the day following their fifteenth tally.

sheep and goats. Reference to the enlargements projected at the right in Plate 5 proves that sunrises on the *E* lines during equinoctial week show a daily difference about 20 times greater than during the winter solstice week proportionately enlarged at *W*.

By contrasting the narrower range between the seasonal sunrise points of the Cairo Sphinx, *S*, *E*, and *W*, in Plate 10, with the nearly three times wider range between the like season-dividing points at London, in Plate 5, we may realize why the Egyptians were forced

to abandon the "horizon method" and devise the surer "meridian method" to locate the seasons by shadows.

THE "MERIDIAN METHOD" OF LOCATING THE SEASONS AND MEASURING THE YEAR BY NOON SHADOWS OF OBELISKS AND PYRAMIDS.

In Plate 11 the world-renowned obelisk in the center of the Piazza of St. Peter's, Rome, is shown casting its sunrise shadow toward the

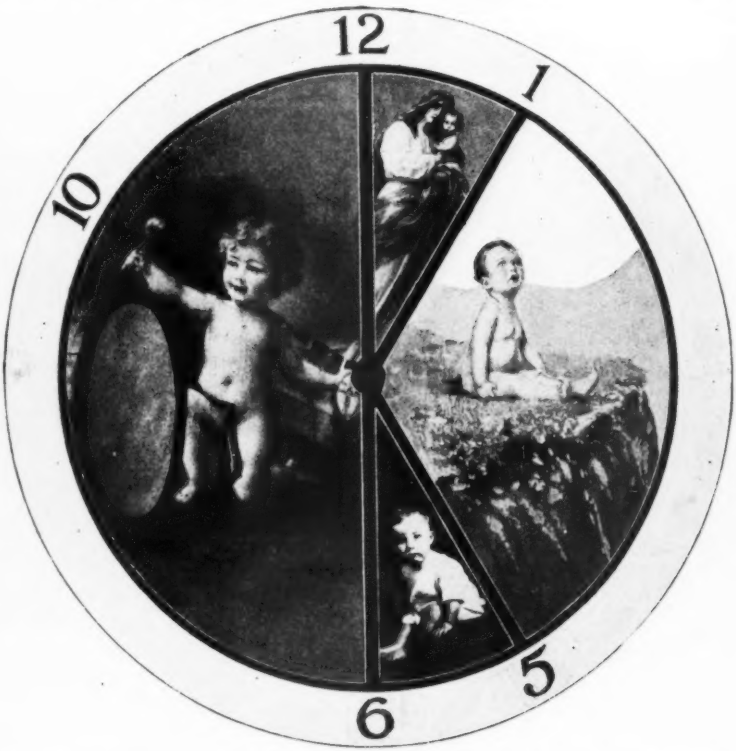


PLATE 4.—ILLUSTRATING THE GROWTH OF EARLY IDEAS OF THE LENGTH OF THE YEAR.

This combined series of 4 pictures approximately represents the 1, 5, 6 and 12 months' stages of a child's first year of life. Chronologically, there was a very similar but incomparably slower natural evolution in the ideas of the early tribes and races of mankind, who developed those patriarchal and gradually expanding "month-grouping units," mistranslated as "years," by which the great men in preexodus times counted their lives. The Arabs and Romans expanded from 5 to 10 moons, and thence to 12.

entrance to that greatest of cathedrals a little after 6 a. m. But the most significant indication in this aerial photograph of the obelisk is its meridian line truly oriented along the north side of the roadway from *S* to *W*. That is marked by the granite midday measuring line between the oval marble disks which indicated certain months and seasons. In January, 1900, I found the significant words

Canceri solstici still readable although much worn, on the oval nearest the obelisk, manifestly recording the fact that the Catholic church authorities, who brought the obelisk from Egypt in 1586 to commemorate the last reform of the calendar by Pope Gregory the Great in 1582, had not neglected to lay down that meridian line with its crowning indicator disk engraved with those two words, indicating

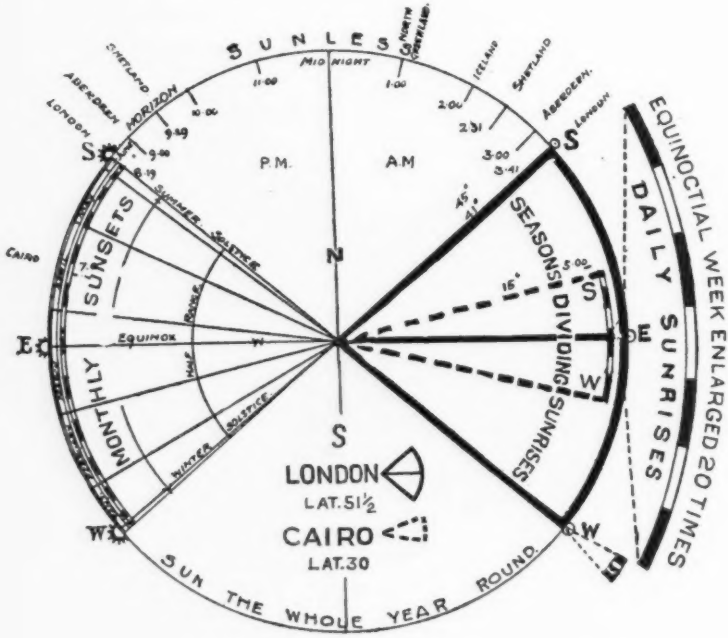


PLATE 5—"AMPLITUDE" DIAGRAM OF SEASONAL SUNRISE-POINTS.

Contrasting the narrow 30° range at Cairo, with the nearly three times wider 82° London range of sunrise and sunset-points along their parts of the horizon—represented by the complete circle's *S*, *E*, *W*, sector, in which *W*, denotes winter, December 22; *E*, equinoxes, March 21 and September 23; *S*, summer, June 21. The winter solstice, *W*, week's range of sunrise change in the southeast is enlarged twenty times, to compare with the nearly twenty times wider interday differences seen between sunrise points during the equinoctial week *E*, when the sun rises due East. Then days and nights are equal.

that when the sun reaches its highest point at noon on June 21, the obelisk's shortest shadow is that moment registered at *S*, on that oval marble marker. Similarly, on the farthest disk at *W*, the tip of the obelisk's longest noon shadow falls on the winter solstice day (December 22). The outer edges of these two marble disks determine the extreme ends of that obelisk's meridian floor line, and they disclose how the Egyptians first used obelisks in calendaring days, months, seasons, and years.

EVOLUTION OF THE PYRAMID SYSTEM.

When discussing my investigations concerning the evolution of pyramids with the late eminent Egyptologist, Professor Maspero, he very kindly drew the "pyramid emblem" (reproduced in Plate 12), stating that it was the distinctive feature found in pyramid temples, and asking me if I knew what it meant. I replied: "There, [pointing,] is the *mastaba*,[1] about the height of the obelisk, which latter has been raised upon it in order to double the length of its shadow. Disked above it is the noonday sun on equinoctial day, that central point in all astronomy when pyramid years astronomically began."

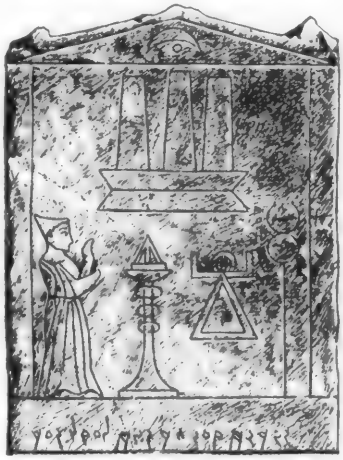


PLATE 6.—PRIEST OF CARTHAGE LOCATING SUNRISE POINT.

Priest of Carthage locating the sunrise point *E* across the fixed central observation point to the sunrise shining around the mid-tri-stone *E*, in order to locate the beginning of their year at spring. That is the highest of the three stones above. The summer stone *S* is on the left, and the winter stone *W* to the right. The sun and moon are united by the rod on the right to form the degree measuring 360 times around the horizon as the unit of astronomical measures.

Later I found that the most notable obelisk in India, the "Lat of Asoka," had thrice been similarly raised on three successive *mastabas* (as shown in Plate 13), due to the fact that later generations tried to win truer calendar records by longer sun shadows and higher star pointers.

Inspection of a section of the earliest Egyptian pyramid in the Encyclopaedia Britannica disclosed the fact, evidenced by Plate 14, that Egypt's oldest pyramid originally consisted of merely one *mastaba* (A. A.). The renowned Professor Flinders Petrie proved by actual excavations that the whole surface of that first built *mastaba* (now the inner core), was covered with polished granite, over which later generations built up the four more superposed *mastabas*, as shown by the shaded part of that section of the pyramid, above which the observatory obelisk must have been placed. Plate 15, showing the present state of this pyramid at Medum, proves that the builders of the first pyramid did not build up the outer triangular slope nor the three dotted projections, as the early sketcher wrongly inferred from the layers of side extensions which the builders, with their economical methods of expansion, added in making their terraces of progress upward, as did the Babylonians and Mexicans.

[1] Arabic for bench.

The next pyramid, at Sakkarah, was increased by six *mastabas* to a height of 196 feet—the limit beyond which it is not practicable to effectively observe the noon shadows of obelisks on the meridian floor line. This limitation is due to the fact that the rays of the sun's disk, shining the full width of its half a degree diameter are bent round the narrow-pointed obelisk so that the requisite apex shadow is cut off or blurred before it reaches the meridian floor line. This is definitely proved by the great Washington Monument at Washington, D. C., where the 555 feet height of that stately stone-built obelisk causes its shadow apex—much wider than the Egyptians could rear in a single stone block—to be blurred by the incurving sun rays which cut off the shadow's tip. Its solid apex is too sharply pointed for its height (exceeding the total of five superposed obelisks) to perfectly register noon on the meridian floor line for more precise observations.

PLATE 7.—THE DRUIDICAL "ARROWS" AT ALDBOROUGH, NEAR YORK, ENGLAND.

These three 30-ton "arrows" mark the site of the earliest capital of the ancient Britons, whose leading advisers, the thoughtful Druids about the time of Jacob lived, there used the "amplitude method" to locate the seasons by the *S*, *E*, and *W*, sunrise points. These three sunrise-pointers are curved to the east, like the *S*, *E*, *W*, sector for London on Plate 5. The midstone *E*, projects due east, from the fixed central point of observation on the left. Compare the writer's 5 feet 11 inches height against the 30 feet above ground height of the monoliths.

This defect is small when compared with the public and educational advantages which at very little cost could so easily be derived by laying a narrow concrete meridian line to the north of this monument from the June 21 to the December 22 noon-shadow points, so that school and college pupils, citizens, and visitors in general might thereby observe the daily movement of the monument's shadow, as it thus indicates the purpose of ancient obelisks. I therefore ask the Commissioners of the District to consider this suggestion, which might with advantage be applied in other Pan American cities in which obelisks or columns have been erected.

The defective shadow measures obtained from obelisks raised on higher step-pyramids caused later pyramid builders to design the more bluntly apexed pyramids erected at Dashur, and shown in Plate 16. A further series of experiments was made there from two different angles of smooth shadow-reflecting slopes, which enabled later generations to build the more truly sloped and highest pyramids at Gizeh near Cairo, as shown in Plate 17, where their elevations are

reflected in the Nile's inundation, which was just beginning to recede from the thus refertilized land, just reappearing as mud flats to the right of the reflection when the photograph was taken.

In Plate 18 the present day calendar makers of Sarawak, in Borneo, are shown fixing their pegs along the noon-shadow line cast by the sun pole. The local farmers know that when that shadow falls on a certain peg they should at once prepare their land for the planting of rice; that when it reaches another, they must prepare to sow corn; and so on. By that simple shadow from an 8-foot pole, these primitive calendar makers can approximate the seasons within about three weeks, because the accumulated experience of their ancestors has enabled them to make secret marks on their treasured floor level rod by which the seasonal shadow-tip points are marked off each year.

Like the ancient Egyptians, they are most careful to carry away their secret floor level rod, leaving only the upright pole with pegs along the trenched noon-shadow line to guide the farmers. After harvests these experts return, pick out their pegs, and collect their tithes from the farmers thus helped to locate the proper seasons.

PLATE 8.—MONOLITH AT STONEHENGE.

The midsummer directing monolith *S*, at Stonehenge in the south of England, marking the northeast direction of sunrise on summer solstice day, June 21. The left axis line from the circle's central observation point, located the 1912 sunrise point from which Sir Norman Lockyer calculated by equinoctial precession that the *S* stone was erected 3,600 years ago, when sunrise was directly in line with the center of that monolith, about 1680 B. C.

PYRAMIDS WERE USED TO FIND THE TRUE YEAR'S LENGTH.

That secret noon-line measuring rod discloses how the ancient astronomers of Egypt reached the yearly 365 days count and the 0.242 fraction of the 366th, almost as exactly as our astronomers compute the length of the year, by measuring (as shown on Plate 19) the shortest noon-shadow cast by pyramids and counting the days between. Their final "Great Pyramid" was erected on a square base covering more than 13 acres and pyramided to the stupendous height of 484 feet, more than 60 times the height of the Borneo sun pole. That height, together with the four truly oriented smooth slopes which merged in the apex as a sky pointer and sun shadow deflector, form the essential features of that greatest and most useful observatory, which has been of far greater benefit to mankind than any other.

The first purpose of that stupendous and monumental instrument was to reflect the noon shadows of the sun, tremendously enlarged, from the height of 484 feet upon the meridian floor line northward, during the time when the sun most widely increases its internoon change of height in the sky, termed "elevation"—that is, during March and September. These internoon changes in the length of the apex-pointed pyramid shadow, as it crossed the meridian floor line, measured a daily difference of about 4.44 feet in length as those shortening yearly noon shadows receded to the center of the pyramid's northern base line, near the spring equinox, when the Egyptian priests began their sacred New Year. This the priests kept from public knowledge by the civil use of 365-day years, drifting one day more behind the seasons every fourth year.

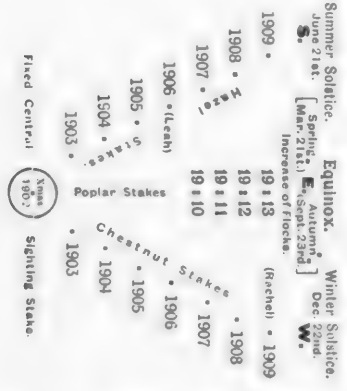


PLATE 9.—JACOB'S SUNRISE OBSERVATORY SHOWING CENTRAL AND DISTANT SIGHTING STAKES.

The central dot, Christmas, 1902, may be taken to mark the center stake from which Jacob watched the sunrise whenever he shepherded flocks in that locality. *S* denotes the most distant terminal rod marking his best effort to fix sunrise point upon the summer solstice day, while *W* marks his best stake attempt to fix the winter solstice day.

When the preceding year's shortest New Year's Day shadow measured 1 foot by the sacred removable rod, the first subsequent year's shortest shadow would, 365 days later, measure 2.09 feet; the second, 3.18 feet; and the third, 4.28 feet; but the fourth year's shortest shadow, instead of being extended the usual 1.09 feet to reach 5.37 feet, would "leap back" the full day gauge of 4.44 feet to the 0.93 point (which is less than the preceding "leap-year's" assumed 1-foot length), and the 366th day would thus be secretly counted as the ending of that "leap year," as clearly indicated by the shadow of the Egyptian Sun God's pyramid.

Since it was not known how those three yearly lengthenings of the shortest shadow were caused by the movement of the Sun God, whom the Egyptians intently regarded with awful reverence as the giver of life, light, and heat, the worshipping priests were all the more puzzled when "leap-day" intervened. They therefore persevered in their efforts to derive the true pyramid slope which is indicated with exactitude, on that meridian, in only a fleeting second of time, once in 128 years, when the sun at the spring equinox crosses the Equator at noon on the meridian of the Great Pyramid.

The cause of those lengthening variations is, that nature's year is 365.242 days long; consequently when the sun crossed the Equator

at noon each 128th year on the pyramid's meridian, the noon shadow indicated the moment that began both the first astronomic day and year subsequent to the leap year and leap day thus closed.

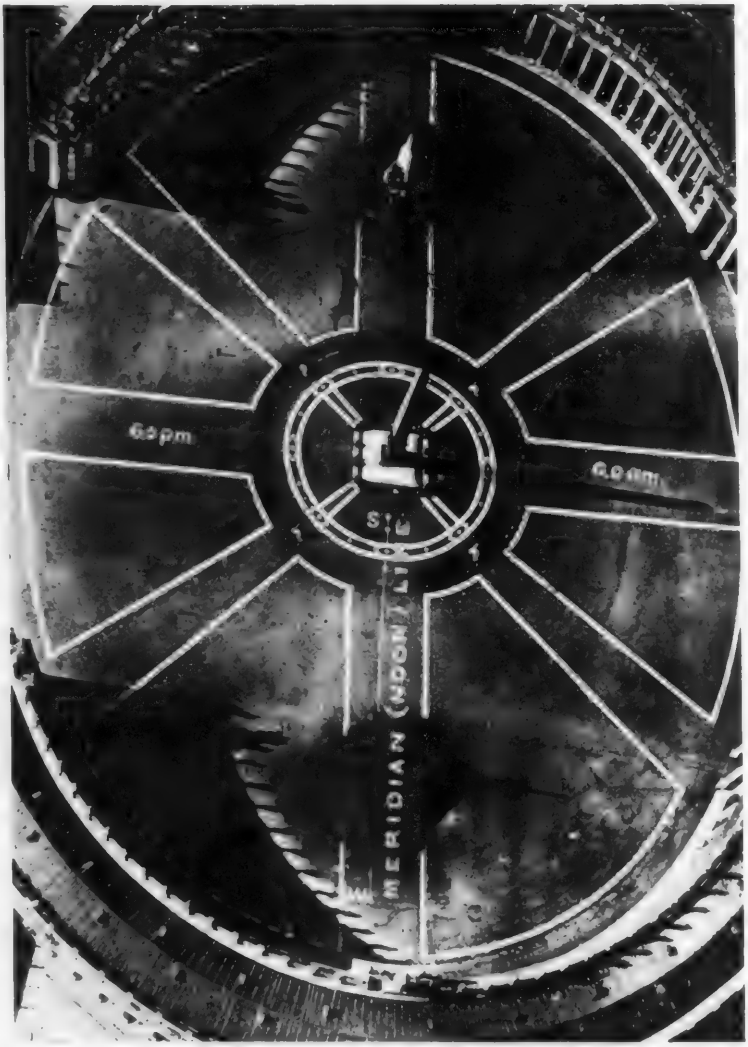
Because the final shadow records in the three subsequent ordinary years could only be measured *at noon* on the respective 365th day, the sun would be 0.242, 0.484, and 0.726 parts, respectively, of its inter-noon rise *below* the pyramid's apex, thus yearly increasing those three cumulatively shortest shadow lengths on the noon line's day-span

PLATE 10.—THE EGYPTIAN BIRTHPLACE OF EUROPEAN CALENDARS.

The pyramid and sphinx area, adjoining the delta of the Nile—that most permanently fertile area on earth, where the greatest variety of crops yield the richest reward of agricultural development, and offered the greatest inducements to calendar days to win food supplies and national prosperity, first by locating across the pivot asp of the sphinx its sunrise points, and second, by observing the pyramid noon shadow. The range of the sphinx's sunrise *S. E. W.* points is too narrow to locate precise days, and could approximate the seasons only within about one week.

gauge of 4.44 feet, by 0.242 of 4.44 feet, a yearly extension of 1.09 feet, until the fourth year accumulated the full 366th day as "leap day."

This average 0.242 beyond the noon-to-noon 365-day year, enabled the pyramid astronomers to prove the length of nature's year by measuring that fractional part of a day which the 1.09-foot yearly extension was of the 4.44 feet change in the lengths of two consecutive noon shadows, and to add to that measured portion the noon counts of 365 days in order to derive nature's true length of year—that is, 365.242 days.



Kadel and Herbert. Permission of National Geographic Society.

PLATE II.—THE FAMOUS OBELISK IN THE CENTER OF ST. PETER'S SQUARE, ROME.

This obelisk was brought from Egypt and erected in 1586 to commemorate the last reform of the calendar by Pope Gregory XIII in 1582; which England did not adopt till 1752. The obelisk is about 100 feet high and weighs 320 tons. Its sun-shadow moves like the hands of a clock (thus originated) when viewed from the north side of its base. This shows how obelisks were used to time days and years. The months and seasons of the year were located, approximately, by measuring the shortest daily shadow-length at noon on the "meridian floor line," shown from *S* to *W*—also indicated by the white disks denoting the day on which the season and month-commencing shadows recur each year.

This was made practicable by the pyramid's 484 feet height projecting its immense noon-shadow lengths on the meridian floor line during the equinoctial days, when the widest expansions of the inter-noon change in the elevation of the sun is about 257 times greater than at the solstices.

These factors indicate why the Egyptians had to slope their pyramids toward the equinoctial sun and raise them more than 60 times the height of the Borneo calendar-makers sun pole, shown in Plate 18.

Limited space prevents the inclusion of proofs that the pyramids were built with much less labor than has hitherto been supposed; but I may record the fact that the Pharaohs knew the dangers of unemployed masses, and hence planned their pyramid building so that the stones were cut and side-hauled up the shady slope by intra-groined haulways during the inundation season, when Egypt's myriads of agricultural toilers were otherwise idle.

Because their need was greatest, the Egyptians had inevitably to work out these vital problems for themselves and, indirectly, for all mankind. Every living soul now benefits by the well-directed thought and labor of the ancient Egyptians.

The following reasons showing why pyramids were built prove the highly important work and valuable research by which the pyramid builders and observers so truly laid the foundations of our calendar and other most useful knowledge.

WHY PYRAMIDS WERE BUILT.

1. The greatest need of every nation is to produce adequate supplies of food to feed its people throughout the year. That need was most intense during the era of pyramid building, more than 5,000 years ago, when the increasing population of Assyria to the north and Ethiopia to the south insistently strove to conquer Egypt.

2. In that era, conquest generally resulted in the slaughter of the conquered men and bondage for their women and children, thus involving family and national ruin. Consequently imperative necessity forced the Egyptians to maintain progressively at least as large a population as the increasing Assyrians.

3. As the total area of land capable of cultivation was limited to about 13,000 square miles in the delta area and the two narrow Nile bank strips within the sand hills dividing the Nile Valley from the surrounding vast desert area of Egypt, the ancient Egyptians could not increase the cultivable area much beyond the limits of the yearly inundation. They were therefore compelled to rely upon producing more crops from the same area of cultivation by intensive culture.

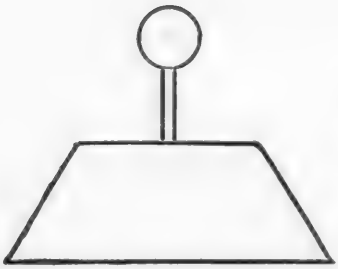


PLATE 12.—PYRAMID EMBLEM DRAWN FOR THE AUTHOR IN 1900, BY PROFESSOR MASPERO IN GIZEH MUSEUM, EGYPT.

This emblem, usually found in pyramid temples, represents the sun disked on the obelisk at noon, when the latter is mounted on a mastaba so as to cast a longer meridian shadow. If the mastaba and obelisk are each 100 feet high, the noon shadow from the apex of the obelisk would be twice the length of the obelisk's shadow when standing on the ground. As the shadow would be increased in length proportionately as successive mastabas were superimposed, the medium 5-tier mastaba or embryo pyramid below lengthened the obelisk's shadow length about sixfold.

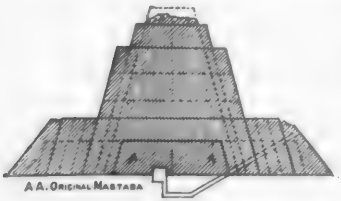


PLATE 14.—SECTION OF THE OLDEST PYRAMID AT MEDUM.

Disclosing the successively increased height on which its obelisk was raised above the original *A . A .* mastaba of polished granite as the nucleus.

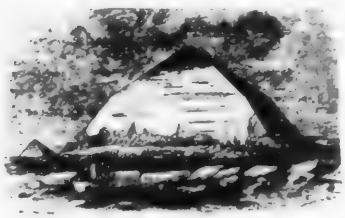


PLATE 16.—THE "BLUNTED" PYRAMID OF DASHUR.

This shows the two test slopes intermediate between step and slope pyramid building utilized in trying to find that best slope to which they built the final pyramid.

PLATE 13.—THE OBELISK, DELHI, INDIA.

The obelisk or "Lat of Asoka" near Delhi, India, is of special interest because the ancient records, 300 B. C., record the fact that this register of latitude and locator of the seasons was, during three separate generations, raised higher by building arched terraces of masonry to extend the meridian shadow register and so to derive truer knowledge of the passing seasons and year.

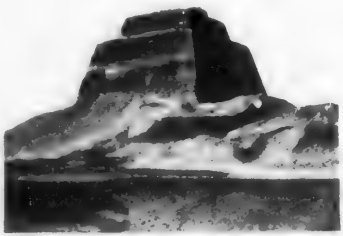


PLATE 15.—EGYPT'S FIRST PYRAMID AT MEDUM.

Showing that it never had the uniform equinoctial slope developed in later pyramids. The next oldest pyramid at Sakkarah was similarly built in steps. The Egyptians ultimately found that the sloping pyramid was best in attaining the greatest height required to differentiate the daily shadow lengths on the meridian line.

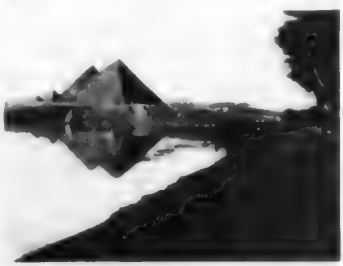


PLATE 17. THE GIZEH PYRAMIDS NEAR CAIRO.

These evidence the final period of pyramid building by the shadows from which the basis of both our daily time calendar system and astronomy were derived. The second pyramid casts its forenoon shadow on the Great Pyramid (See Plate 19.) The Nile's inundation water is over the fields.

4. Such increased crops could only be intensively developed by locating and using the precise seasons required in each tilling and sowing of the numerous varieties of crops the Egyptians required. They grew three grain crops yearly by applying such knowledge.

5. That precise knowledge of the seasons could not be made available without studying the sun's seasonal elevations at noon, because the Egyptian range of seasonable sunrise points is too narrow to locate precise seasons.

6. Those seasonal elevations could best be located yearly by measuring the sun's noon-day height location inversely by shadows on the meridian floor line, as the Borneo calendar men are shown doing.

PLATE 18.—DYAK CALENDAR MAKERS OF SARAWAK, BORNEO.

Measuring off for the guidance of local farmers the length of the pole's noon shadow for the seasons when they should prepare the ground to sow corn, rice, etc. Pegs of different kinds for each are stuck in the noon line from secret marks cut on the sacred rod the calendar maker carries away.

7. As Egyptians had neither telescopes nor "smoked glass" for observations, and the glare of the sun in the clear Egyptian sky was too fierce for direct "sighting," they had to observe the sun's seasonal position indirectly by measuring the ever-varying lengths of sun shadows cast from the highest possible structures at noon.

8. Pyramids, as huge sun dials, were the structures they could erect sufficiently high to differentiate the noon sun shadows, which indicated by their different daily lengths the best season for each of the yearly recurring operations necessary to produce abundant crops. The Egyptians were thus enabled to insure national safety and permanent prosperity by maintaining sufficient men to defend and intensively cultivate their land.

Thus pyramids were built to safeguard the life of Egypt, which depended upon utilizing the Nile Valley's advantages by deriving and applying calendar and agricultural knowledge.

The various series of pyramids built were used as tombs for Pharaohs only *after each one except the one in use* had been superseded by a more perfectly sloped one, as the builders derived truer slopes by progressive efforts.

PLATE 19.—THE PYRAMID'S SECRET SHADOW RODS DISCLOSE ITS CALENDAR-RECORDING PURPOSE.

The Great Pyramid and the Sphinx, marking the birthplace of the Gregorian calendar. These huge structures, which are regarded with curious awe by tourists, are generally supposed to be merely the stupendous monuments and tombs of ancient rulers of Egypt. They are really the greatest astronomical instruments used to establish and keep a correct yearly record of the seasons. They were built so that "seed time and harvest may not fail." Note the triangular shadow on the pyramid's light side from the second pyramid one-third of a mile to the southwest. The arris ridges, from corners to apex, enabled observers to trace the courses of the stars.

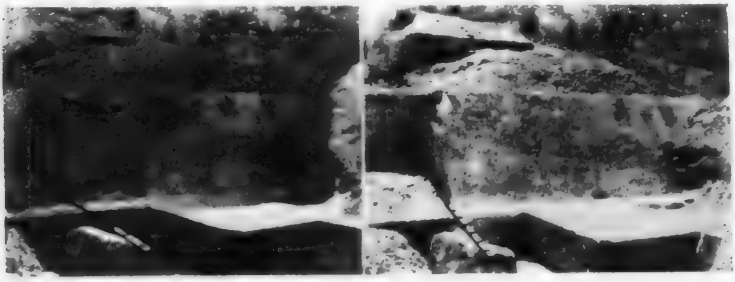


PLATE 19A.—THE "SHADOW-FLOOR" OF THE GREAT PYRAMID.

These photographs showing the "shadow-floor", where the original casing stone proves the true slope, were taken on two consecutive days in March, at the foot of the Great Pyramid, to illustrate the use of the secret "meridian rod" in measuring the length of the shortest shadow at noon each day. Note the pebbles placed one foot apart on the rod, to scale the varying length of the pyramid's shadow from the mid-foot of the northern slope, which before next noon had "swallowed its own shadow." The picture on the right proves by the absence of shadow on the rod that the sun had risen between noons above the slope, and so begun that pyramid's "New Year." By tallying the 365 noons between the shortest shadow each spring, the Egyptians first derived the year's true length. The sacred rods were removable in order that the priests could preserve the mystery surrounding the science of calendar-making. This mystery led the people to regard with reverential fear the priests who prescribed the seasons. To be buried in or around the disused mysterious pyramids was an honor reserved for the greatest men, as we bury our greatest in cathedrals and around sacred places.

HOW ASTRONOMY WAS EVOLVED BY PYRAMID OBSERVERS.

While the greatest service rendered by the pyramid observers to humanity was in finding the actual length of the year, their most far-reaching achievement was the laying of the basis of our now universal astronomy by designing and using the four equated and truly oriented slopes of the Great Pyramid. The north slope was first used as a "sighting plane" to slice off the celestial equator on equinoctial nights, as an orange cut through its mid-girth shows its equator by the circular cut skin, to which the 12 sectors radiate as if from a minute pyramid centered in the core. That slope with its apex sky-pointer was used to observe and measure the heavens into 12 zodiacal sectors, each 30 degrees wide, as each season's sectors circled nightly one degree farther past the apex of the pyramid's observatory slope, as illustrated in Plate 20.

As that circular grouping of the zodiacal stars displays how the great Aztec (Mexican) calendar stone was similarly evolved (shown in Plate 21), I will attempt to describe it more fully.

In the center of Plate 20 is one of the model pyramids by which I experimented many years, the white triangle showing the north slope. Near the center of the base is the pyramid's observation passage from which observers, by looking up the vertical line to the star passing the apex nearly 600 feet distant at midnight (timed by water-dropping clocks such as the Chinese still use), noted that the following midnight that same star circled into its previous midnight position four minutes earlier and, during the passing four minutes, moved one day-notch as one "degree" to the right, because, as we know but they did not, the earth had made one rotation, moving an average of $\frac{1}{360}$th part of its orbit around the sun, thereby apparently circling the whole zodiacal circle one degree, clock-wise, past the apex. This one degree was counted as one finger, the next night's as two, and so on for the 10 digits of the observer's hands, which completed the 10-day week by which the Egyptians worked thousands of years before their descendants adopted the 7-day week. Three 10-day periods completed their always equal months, as shown by the three boat-like loops within each month's embracing curve. Moreover, all the tropical stars passing the apex during each of those 30-day months were grouped into the distinctive zodiacal signs which appear in our calendars and astronomical records, as in Plate 20.

Further, the ruling priests had to design an effectively simple system by which their most valuable calendar knowledge could be applied in order to win more abundant yearly crops throughout the more than 1,000-mile length of the Nile Valley. So, as their boats were wafted along the Nile by the wind, they conceived the beautiful idea

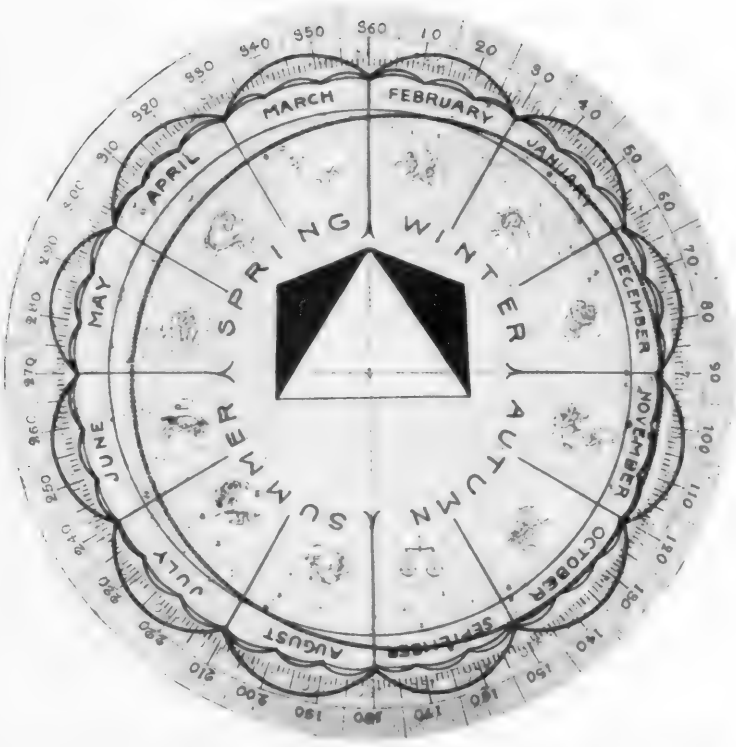


PLATE 20.—BASIS OF THE CALENDAR: THE ZODIACAL CLOCK IN THE HEAVENS.

The Zodiacal clock was finally evolved by observing and recording the stars. This southern star-clock's face revolves "clock-wise" each 24 hours as the earth rotates daily in its orbit around the sun. The earth's daily progress around its orbit was, and still is, measured by the current night's star, which having passed the pyramid apex precisely at midnight, circles to that apex point 4 minutes earlier next night. During the 4 minutes expiring at midnight the whole 360 degrees of the Zodiacal circle turn one-day-notch as the "degree" of sky measure. In 10 nights (counted on the hands) the current star passed 10 degrees west of the apex meridian. Each successive 10 nights' range of apex passing stars, the pyramid priests grouped by a distinctive boat-like sky arc, under which they inscribed a celestial boat man with the stars passing during his 10 days—as proved by the Egyptian calendar reproduced on Plate 22. Three of those 10-day-weeks (decades) they grouped into each of their always equal 30-day months; 12 of which embraced 360 days; beyond which they had 5 days of year-end festival in ordinary years, or 6 of such days in leap years, ended by the fleeting of the pyramid's shortest shadow.

When comparing the Egyptian zodiacal calendar with the Aztec calendar stone in Plate 21, it is important to bear in mind that each ancient nation had to evolve its native calendar and keep it secret from enemies; who without true calendar knowledge were subject to famines through irregular sowing times, etc.

The circular courses of the sun and stars led Egyptians, Aztecs, and other nations to devise circular calendars.

that the ever constant heavenly winds wafted the zodiacal stars across the sky in inverted boats, each measuring 10 degrees in length. These, they sculptured as the 36 sky-roof boat spans measuring their "Houses in the Heaven," as pictured in Plate 22. To distinguish the seasonal dates for each of the 10-day arcs, they inscribed 36 different grotesque boatmen, adorned with masks by which the calendar-regulating priests throughout Egypt could identify the first

PLATE 21.—THE MEXICAN AZTEC CALENDAR STONE.

This celebrated American calendar is so well known that it need not be described. The circular form proves that to the Aztecs, as surely as to the Egyptians, nature indicated the seasonal dates by the arc circuits of the sun and stars.

The significant midway circle of unbroken sequence, to which the attention is specially directed graphs their always equal months of 20 days, most conveniently quartered by their five-day weeks at the four cardinal points of *N*, *S*, *E*, and *W*.

day of each of the recurring 10-day periods in every year. Those boatmen were made all the more impressive by sculpturing above their respective heads the passing stars and zodiacal signs.

Egyptian priests could not communicate quickly over long distances; but by using this easy code, first on papyri and later on the temple roofs, they could simultaneously assemble in or around their 1,000-mile range of temples, the local chiefs and overseers, when by the 10-digit counts of their hands they could impress upon their

hearers' minds what to do during each 10-day week. They must prepare the ground for certain crops, sow seeds for others, harvest still other crops, mate their domestic animals, and so on, precisely as the Egyptian daily calendar prescribed.

By these means everything was done in season; the best crops were secured, and—in the case of their upper "Sharake" lands—three crops of the most useful grains were obtained without impoverishing the soil so constantly refertilized by the Nile. This explains why there was always "corn in Egypt."

The central source of all such governing knowledge was zealously guarded and secreted by the priests of the Great Pyramid, who knew that, by the shortest noon shadow's interday counts, the ordinary year's 5 last days (and leap year's 6 days) shadowed beyond the 360 days were tallied beyond their 12 equal months of 30 days each.

Lack of space prevents explanation of the interesting evolution of the constellations which became possible only after centuries of continuous research, guided and measured at the precise seasons along the edges of all the four 600-feet long, equally inclined slopes of the pyramid, when viewed from the serial observation points along its four truly oriented base lines.

The result of those centuries of observation, study, and charting are evidenced in Plate 23, which shows the path of the sun crossing the equator and meridian at different seasonal points along the ecliptic. Its black notches mark the 365 points indicated midnightly by the pyramid's apex among the stars, and it records between that path's white notches the precise apex locations opposite which, at 180°, the sun radiated its light on the 365 preceding noons.

In Central and South America, the Aztecs, Mayas, Peruvians, and other ancient races in like manner devised calendars to meet the agricultural and other needs of their people. This is evidenced by the well-known Aztec calendar stone shown in Plate 21. But as these American races lived much nearer to the equator where the Egyptian type of pyramid observatory would have necessitated steeper slopes than it was possible for them to build to the angle of the sun's noon altitude at the equinox, those ancient American races could not do better than build their open step pyramid observatories to the moderate heights needed to keep in approximate touch with the yearly seasons.

During earlier generations they, like other races, passed through the moon counts and the evolution of expanding years derived by locating the seasonal points of the sunrise on the horizon's curve and counting days between midsummer and midwinter, as their stone circles, etc., in New Mexico prove, until they, like the Egyptians, later derived truer calendars by equinoctial observations at their pyramids.

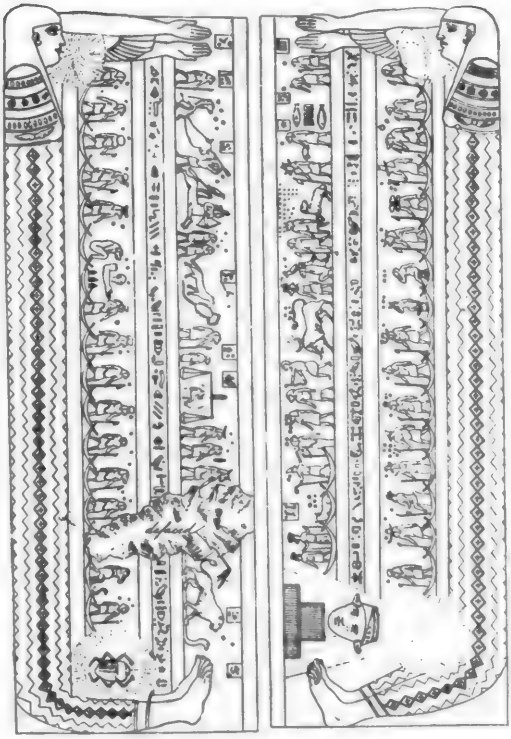


PLATE 22.—ANCIENT EGYPTIAN CALENDAR OF TWELVE MONTHS, SHOWN BY SIGNS OF THE ZODIAC, ETC.

This reproduction from the temple at Denderah is similar to others at Esneh, Ed Dayr, etc.

It is an early representation of that ancient calendar system which the Egyptian priests kept profoundly secret until their descendants were induced to engrave their zodiac in the temples to satisfy their Greek benefactors.

Herodotus, the chief historian of ancient Greece, records that "The Egyptians were the first to discover the solar year and to portion out its course into twelve parts. They obtained their knowledge from the stars."

Each of the 36 boatmen of the "astronomical houses" shown above wore distinctive masks, easily remembered in their season by the priests who, teaching along the more than 1,000-mile length of Egypt, instructed farmers and overseers on the first of each ten-day period what to do during those ten days, as indicated in the following, which refers to ten September days:

"Sow turnips and beets. Separate ewes from rams. Fishes spawning. Sow clover. Gather cotton and olives. Day and night equal, autumn begins. Nile highest, open water channels. Women make syrups of fruits, men sow barley. Sap of trees recedes. Store fruit and sow winter vegetables."

The two top boatmen are partly haloed by sun rays, three are ranged above the barred mastaba, while the one carrying the Virgin has been defaced.

EGYPTIAN ORIGIN OF OUR CALENDARS.

Our Julian and Gregorian calendars were derived from the Egyptians after the latter had been conquered by the Romans and were

obliged to inform Julius Caesar of their 360-day calendar of twelve 30-day months, beyond which extended the 5 days of festival holidays. These latter Julius unfortunately caused to be moved as the thirty-first days of January, March, May, September, and November, respectively, "because odd numbers were lucky" and he wanted the Romans to be unaware of the fact that his calendar was derived from the conquered Egyptians.

Sosigenes, the Egyptian astronomer, tried his best to induce Julius Caesar to realize the superior advantages of equal months equally divided into 10-day periods or weeks; but Julius autocratically ruled that the odd 5 days must be made the odd-numbered monthend dates recorded above.

The practical benefits of the fixed Julian calendar were so highly appreciated throughout the Roman Empire, which was thereby relieved from partial crop failures caused by the twelve-moon calendar, that the Senate renamed Julius Caesar's birth month Julius (July) in his honor. Its length was 31 days, and as his successor Augustus happened to have been born in the following month and wanted to have his birth month named after himself, and to be historically known as also having altered the calendar, he therefore insisted upon depriving February, which then ended the Roman year, of its twenty-ninth day to make August 31.

This gave 93 days to the third quarter of the year, and unfairly reduced the first quarter year to 90 days. As rents were then charged quarterly, the Senate requested him to restore the twenty-ninth of February, but Augustus, the Autocrat, said, "No, you can have the same days as before in my quarter by moving September 31 to make October 31," which they did. That again caused two 31-day months to come together, so after further complaint Augustus moved November 31 to be December 31.

THE CALENDAR'S DEFECTS CAUSED BY THE ROMAN CAESARS.

These facts prove that our calendar's inconveniently unequal months were arbitrarily fixed into those erratic lengths to suit the foolish whims of the Caesars. They were not fixed by the sun's seasonal indications, nor in accordance with the transit of the stars across the 12 astronomic sectors measuring off the zodiacal star groups, as is erroneously supposed by people generally throughout the world. Julius Caesar should have kept Roman numbers instead of names for months. He made a more trivial mistake by beginning the year nine days late, because he selected the moon sign, by which all in the Roman Empire were to begin using the Julian calendar, when it began nine days after the shortest day.

This latter slight deflection does not adversely affect the Gregorian calendar users, because the coldest days recur in January, and the

important crux of the civil calendar construction is to maintain the same number of days between the first day of the year and the equinoctial day, March 21.

Now that the Russians, Siberians, Turks, Chinese, Japanese, Indians, Egyptians and some adjacent nations have, since the World War, adopted the Gregorian calendar for governmental, legal, and other national purposes, it would be folly to attempt to revert nine days so as to end the year on the shortest day, especially as this would cause much daily annoyance and the risk of error to the astronomers of all nations without any adequate compensating advantage. It is therefore not worth further consideration, unless necessary to persuade Mohammedans universally to use the international fixed calendar.

But the failure of calendar-revising Caesars to fix equal months, which the weekly 7-day unit should have evenly quartered, has caused all civilized nations much and long-continued inconveniences, to be later set forth. These arose little by little after Constantine the Great, about 321 A. D., conferred the great boon of the 7-day week and Sunday rest upon Europeans. He failed, however, to foresee the further practical advantages which could then most easily have been given, by separating New Year's day and leap-year day from week days and fitting the 52 weeks into 13 four-week months. Had he done this, the confusion caused by the fact that December 31, for instance, has the same week-day name in any one year (except leap year), as the preceding January 1, and that in leap year the extra day pushes the week-day names still another day forward, would have been entirely avoided.

A further needless factor of change was caused by the unfortunate moon wanderings of Easter sanctioned by the Roman Church Council at Nicaea, Asia Minor, A. D. 325; simply because the priesthood and pilgrims then needed the moonlight in land and sea travel, by night, along the rocky unlighted coasts and islands on the way to their great yearly Easter festivities.

While moon wandering Easters affect North America but slightly, they adversely affect business, educational, social, and legal affairs in South and Central America, as well as in Europe, much more than is generally supposed.

It is a most significant fact, however, that the Gregorian calendar is used throughout the three Americas, that is to say, throughout the entire western hemisphere, in which the diverse populations drawn from nearly all the races and creeds of the other continents are in complete accord in this matter. Moreover, such able Pan Americans as Don Carlos Hesse, the astronomer at Iquique, Chile, have strongly advocated the proposed "fixed calendar." It would seem, therefore, only logical that the Pan American nations should assem-

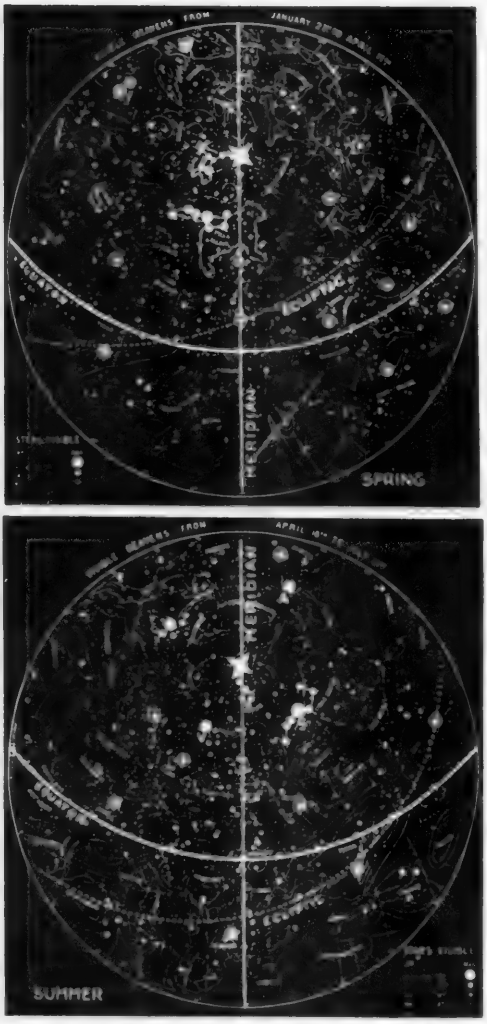


PLATE 23.—SPRING AND SUMMER MAPS OF THE STAR GROUPS IN THE CELESTIAL SPHERE, MOSTLY VISIBLE THROUGHOUT EUROPE, ASIA, NORTH AMERICA, AND NORTH AFRICA.

The vertical dotted line through the pole star and zenith is the local celestial meridian dividing each map into east and west halves. The part-circle crossing the meridian at right angles midway between the zenith and the south horizon is the celestial equator. The longer segment of the black-and-white dash circle cutting the meridian and equator obliquly registers the sun's path along the ecliptic. It was marked off in daily notches, white for noon and black for midnight, as each nightly cog thereof (see Plate 20) passed the apex of the great pyramid four minutes before the twenty-fourth hour of observation during the evolution of star calendars by pyramid priests about 5,000 years ago. That never-ending year-traversing ecliptic circle double-crossing the equator led the early Chinese to select the double-curve bisected circle as their emblem for eternal life.

On the upper star map for spring, the constellations of Ursa Major and Ursa Minor, commonly known as the Great Bear and Little Bear are outlined as bears, with their respective 7 and 6 "Stars of the Plough" shown with very long unbear-like tails and saddleback stars separately outlined by indicator-lines.

Those stars are also emphasized on the summer map to exhibit the seasonal change of location on their circumpolar course.

They were very widely used by calendar-makers in primitive races, who had not evolved the truer method of pyramid observations which won more practical agricultural and social benefits for the more enlightened civilizations in Egypt, Assyria, India, China, and Central America.

The brighter fixed stars of the first magnitude around which their neighbor stars were grouped into constellations by pyramid observations are shown bolder and encircled.

Their constellation outlines are traced around them to facilitate identification as they circle through the seasons around the celestial pole, which I have four-rayed to the four season-dividing locations of the Great Bear's tail-root-star, shown by the four white disks added to the summer map.

"A" denotes autumn location Sept. 23.

"W" denotes winter location Dec. 27.

"V" denotes spring location Mar. 21.

"S" denotes summer location June 22.

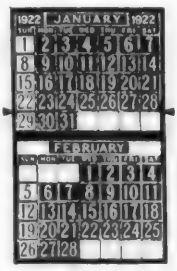
The circumpolar movements of North Stars seem to move contrary to watch-pointers, because to trace their course, the pyramid priests had to observe them while looking north up the south slope of the pyramid; whereas their zodiacal calendar shown on Plates 20 and 22, were derived by looking up the north slope to the equatorial stars of the Zodiac which thus appear to move clock-wise.

The east and west slopes of pyramids were needed to locate by degrees the celestial latitudes of the courses of stars rising and setting north and south of the celestial equator.

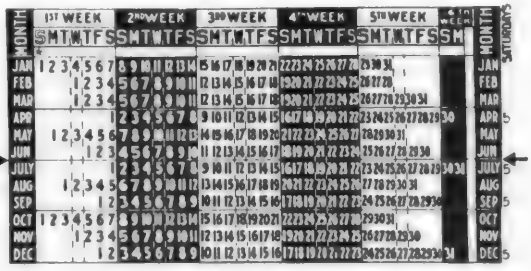
The pyramid's four slopes 600 feet long, towering 484 feet high, were necessary to group stars into constellations, as now astronomically used by all nations for land surveys, navigation, etc.

After the calendar was developed and astronomy was thus derived by pyramid observations into a scientific system which astronomers could use all over the world, there ceased to be any further use for pyramids, which consequently lapsed into disuse, after the pyramid priests were killed by the "shepherd kings" who invaded Egypt before the time of Abraham.

ble the proposed international conference to still further improve that most widely used of all calendars so that it will become by the united efforts of all nations the best international "fixed calendar," universally operative and beneficial to all mankind. The fact that standard time was internationally established as the result of such an international conference, called by the President of the United States in 1882 at Washington, D. C., where the countries of the Americas have located their great Pan American Union, in which the recent Conference for the Limitation of Armament so successfully completed its great achievement, raises the hope that the international conference to improve our calendar will also be held in that city some time during 1923. Some of the many practical reasons for calling that calendar conference are summarized in the following outline of *our calendar's defects:*



Unequal months split the weeks at month-ends most awkwardly, causing many inconveniences.



Monthly dates, showing the broken weekly range during the year 1922, which includes 42 complete and 21 broken weeks, including also the "odd day," Dec. 31. The latter by being Sunday, like January 1, forces the inconvenient change of week-day names in all the months and years which follow:

Compare week-day dates in the first four weeks of January with day names pushed three days forward in the dislocated four weeks of February.

We need a monthly measure in which the day names, with regard to the numerical dates, will be "fixed."

DEFECTS OF OUR CALENDAR.

1. We earn and pay by the month, but have not an equal monthly measure, except for prisoners, whose time is counted in months of 30 days.

2. Our months vary from 28 to 31 days 11 per cent difference yet the same monthly salaries, rents, etc., must be inequitably paid. Monthly business charges for maintenance, depreciation, etc., are unfairly apportioned, and monthly profits credited as though each month were productively one-twelfth of the year.

3. The confusing changes in week-day names for the same dates in successive months, through the intrusion of New Year and leap days,

cause further disparities which are misleading in business, as evidenced when comparing monthly output of full working days from Monday to Friday, plus a half day on Saturday. On this basis March, 1922, has 14 per cent more earning time than February, which is only one-thirteenth of the year.

4. The changing week-day names bring Christmas, New Year, and other holidays on Sunday and into weeks which they split, depriving toiling millions in all countries of the more-prized holiday extensions combined with week ends.

5. The shifting range of weeks through the months (as displayed in above chart for 1922) burdens business and social life with many tiresome references, limitations, and troubles. A few examples here may suffice:

We are constantly forced to consult the calendar to trace how many weeks intervene between any given dates, and to ascertain the weekday names throughout the months. Periodical business and social meetings held on selected weekdays have to be described in by-laws, etc., as the "first and third Wednesdays," "the Friday nearest the twentieth," etc. Dates for national holidays, festivals, etc., falling on Sundays have to be postponed by proclamation, etc. Bank drafts, trade bills, etc., due on Sunday have to be held over, and one day's interest thereon lost. Monthly trade balances, wage adjustments, etc., are complicated by weekly wages being split up in the weeks which, beginning in any one month, quarter, semester, or year, end in the next following. Nine of the months extend into five weeks, and three into six, as a glance at the chart will show.

6. There were five Saturdays each in January, April, July, October, and December, 1921, when housekeepers were calendar-forced to buy a fifth week's supply of meats, groceries, etc., out of equal monthly income quotas. Many thus trend to fall into debt, or seek to "sub" from husbands who are also found shorter of cash at the end of the longer months. These shortages result in family, business, and other troubles, directly attributable to the unequal months of our calendar.

7. Conversely, storekeepers in the months of five Saturdays are encouraged by their inflated incomes to overbuy, which is apt to cause trouble the next month when fewer Saturdays and sales fail to provide sufficient income to pay for the longer month's purchases, with the resulting tendency to force retailers and others into debt, etc.

8. The inequalities in halves and quarters of years are confusing, developing the following unjust differences in 1922:

	Year.	Half years.	Quarter years.
Week days	365	181–184	90–91–92–92.
Work days	298½	142–141½	70½–71½–72½–72.

9. Moon wandering Easters move the latter and other festival dates erratically forward and backward, making school, college, legislative, and other periods of unequal lengths and causing much inconvenience and loss.

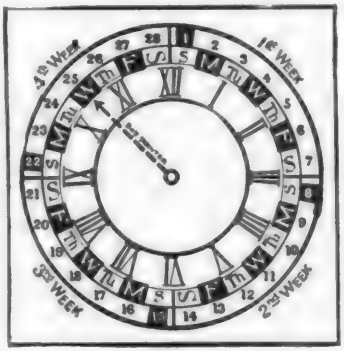
All calendar periods for earning and spending can be made equal, and thus help to increase employment, to circulate money, to stabilize business, and to benefit home life.

TO REMEDY CALENDAR DEFECTS.

Every nation now calendars the days of the year in 7-day weeks, although weeks were not in use when the different calendars of un-

THE STANDARD MONTH.

THE NEW (13th) MONTH "SOL" to measure all months, and form our "YEARAL" of 13 months, thus:						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
*1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28



THE STANDARD MONTH: THE REMEDY FOR CALENDAR DEFECTS.

"Sol" 28 days long; 4 complete weeks. Every month will be like this new month. Every month will cycle through its 28 days, ticked off by the "Day-pointer."

equal, inconvenient months were imposed upon our ancestors by the Roman Caesars nearly 2,000 years ago.

We can not alter the length of the days, weeks, or years, but we can easily amend the months, so that each, like February in 1914, will contain 28 days in 7-day weeks, which exactly and best quarter the month for business and social convenience. That ideal month is the standard proposed, because it is not an experiment but the easiest and best now used. To expedite long counts of days between any two dates, it would be better *to number*, instead of to *name*, the months; but if names are more desirable, the new month "Sol" could be inserted between June and July as readily as "leap day" was inserted between February and March, 1920.

This proposed new month, with the other 12 equal 28-day months, will constitute the amended calendar year proposed, after "New Year Day" (without any week day name) is prefixed as an extra whole

Saturday or Sunday holiday to precede the 1st of January, in which month New Year Day will be included as "January 0."

This will absorb the extra week day (over and above the 52 weeks) which now needlessly and most inconveniently causes the names of all week days to change throughout the successive 365 dates of each year. In leap years, leap day should precede either "Sol 1" or July 1 as "0," being in either case an extra Saturday international holiday with no week day name.

When these changes are made, it follows that the same day in each week will always fall on the same four fixed dates each month, so that each week day name will always denote its monthly dates, and vice versa, as the "standard month" shown on page 569 would then apply to all months.

A less essential change is the proposal to abolish moon-wandering Easters by the international churches fixing Easter at the most convenient date in April—each nation being free to fix its own legal and other holidays and festivals on the dates it may select for that purpose.

In conformity with the foregoing, the International Government Conference of all Nations[1] will be assembled, in the near future, to select the best working plan that can be internationally devised in order to:

1. Separate New Year Day from week day names.
2. Move leap day to be a midsummer holiday.
3. Decide the best arrangement of 52 weeks in months.
4. Name the 13th month, if naming is preferred to numbering months.
5. Accept the date for Easter selected by the churches.
6. Set the date when the fixed calendar shall begin (probably 1928).
7. Draft joint recommendations for the above into legislative form to be passed by the legislature of each nation, so that the calendar can be printed for use on and from the date agreed upon. From that date all day names will become fixed to dates; all times for earning and spending, statistical comparison, etc., will be equalized; and all calendar-caused troubles will cease. In addition to these improvements, the change to a month of 28 days from alternate 30 and 31 day months will cause 9 per cent more circulation of all monthly moneys now used for monthly accounts, salaries, rents, etc. (without any increase in capital outlay), and thereby increase business and social prosperity.

[1] See *Time to Fix the Year*, 132 pp., illustrated, which can be obtained from the offices of the *International Fixed Calendar League* in Washington, D. C., Vancouver, B. C., or London, England.

SUMMER SCHOOL COURSES IN THE UNIVERSITY OF MEXICO

I.

AMONG the many evidences of a genuine renaissance in everything pertaining to public education and national culture in Mexico none is more immediately and definitely convincing than the summer school courses offered by the University of Mexico.

CATHEDRAL AND SACRISTY, MEXICO CITY.

These courses have been organized by the University faculties primarily with the object of affording foreigners in general, and more particularly those from the United States and Canada, an opportunity of perfecting their knowledge of the Spanish language and literature; and secondarily, that teachers and students from the neighboring republics of North and Central America may visit Mexico and become better acquainted with the history, manners, and customs of the people of this great Republic.

Perhaps no country in Spanish America has so much to offer as Mexico to the serious student of Spain's great civilizing and cultural contribution to the New World, as evidenced in the language, religion, jurisprudence, and architecture of her colonies. Certainly

none offers more, particularly in architecture. Cities like Mexico, Puebla, Querétaro, Morelia, and Guadalajara are notably rich in monumental and beautiful examples of the Spanish colonial type, as also of the more ornate Chirrugueresque, many of which date from as far back as the XVIth century.

The viceroyalty of Mexico flourished greatly under the Spanish régime; in whatever direction the foreign visitor turns his steps will be found traces of colonial splendor, not alone in the more obvious and material of human activities, but in those less tangible yet infinitely more expressive activities of the national spirit known as art and literature. In lyric verse Mexico yields place to none on the

SCHOOL OF MINES, MEXICO CITY.

Western Hemisphere, as witness Amado Nervo, Sor Juana Inés de la Cruz, Gutiérrez Nájara, Salvador Díaz Merón, Justo Sierra, Manuel José Othón, and Enrique González Martínez,—to name but a few of the many whose works are known wherever Spanish is spoken.

There will be no lack of interesting and picturesque material and atmosphere, over and above that provided by the summer school courses, for those who enroll themselves in the latter. Rather will it be a continual embarrassment of riches, and the daily problem one of how best to choose from the extraordinarily full and attractive program which has been prepared.

ORGANIZATION OF THE SUMMER SCHOOLS.

The university offers two separate summer school courses, both of which will be held in Mexico City, one extending from July 12 to August 25, the other from July 26 to September 9. So far as the subjects offered are concerned there is very little to choose, as they are

EL CARMEN CHURCH, SAN ANGEL, FEDERAL DISTRICT, MEXICO.

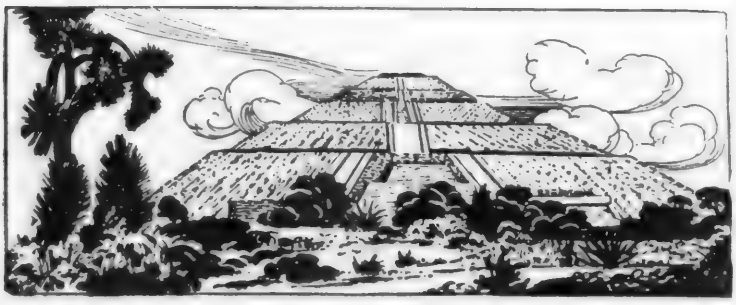
practically the same in both courses. Moreover, the latter are so arranged that students doing intensive work may duplicate their work.

The classes will be given in the "Rectoría" and post-graduate school of the university, the summer schools headquarters being located in the same building, in the University Exchange Department. Classes and lectures will be given daily from Monday to Friday, inclusive, Saturday and Sunday being reserved for visiting museums and for excursions to points of historic or artistic interest.

CONVENT OF TEPOZO TLAN, STATE OF MEXICO.

SUBJECTS INCLUDED IN THE COURSES.

The courses include Spanish grammar, phonetics, philology, and literature; geography and natural history of Mexico; Spanish American and Mexican history; some consideration of the political, juridical, educational, and social development of Mexico; Spanish and Mexican art,—architecture, painting, sculpture; Mexican archaeology, and commercial instruction. It should be noted that the school of music is under the direction of the president of the last International Musical Congress in Italy; while the school of art is under the well-



PYRAMID OF THE SUN, TEOTIHUACAN, STATE OF MEXICO.

known artist, Ramos Martínez. Since most of the professors in these two schools speak English, a knowledge of Spanish is not obligatory on the part of students availing themselves of this opportunity for the study of their art in a new and stimulating environment.

MEMBERS OF THE SUMMER SCHOOLS FACULTY.

Rector of the National University of Mexico: Antonio Caso, doctor honoris causa of the University of Rio de Janeiro (Brazil), member of the International Institute of Sociology of Paris and of the Mexican Academy.

Director of the Summer Schools: Pedro Enríquez Ureña, Ph. D., professor in the University, ex-professor of the University of Minnesota.

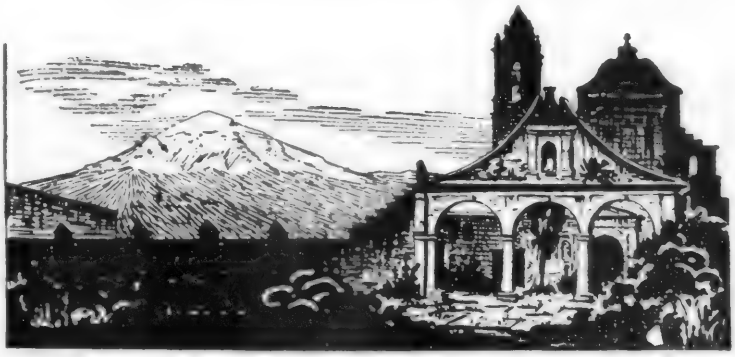
Councillor: Federico de Onís, Ph. D., professor, University of Salamanca (Spain), and Columbia University.

Secretary: Manuel Romero de Terreros, Marquis de San Francisco, member of the Mexican Academies of Language and History.

Assistant Secretary: Daniel Cosío Villegas, professor of sociology, University of Mexico, president of the International Federation of Students.

The following is a list of the professors and instructors:

Abel J. Ayala, ex-Director General of Public Instruction.
Luis A. Baralt, jr., Ph. D. (University of Habana), M. A. (Harvard University).
Adolfo Best, chief inspector of drawing in the Department of Public Education.
Honorato Bolaños, professor of history, University of Mexico.
Alfonso Caso, professor of philosophy, University of Mexico.
Luis Castillo Ledón, director of the National Museum of Archaeology, History, and Ethnology.
Eduardo Colín, ex-professor of literature, University of Mexico.
Daniel Cosío Villegas.
Jorge Juan Crespo, professor of languages, University of Mexico.



OZUMBA, MEXICO STATE.

Carlos Díaz Dufoo, jr., professor of philosophy, University of Mexico.
Jorge Enciso, Inspector of Artistic Monuments.
Ofelia Garza, instructor in Spanish, University of Mexico.
Ricardo Gómez Robelo, Chief, Division of Fine Arts, Department of Public Instruction.
Carlos González Peña, professor of Spanish, University of Mexico; member of the Mexican Academy.
Palma Guillén, instructor in psychology, Women's Normal School.
Pedro Henríquez Ureña.
Alba Herrera y Ogazón, instructor, National School of Music.
Manuel Ituarte, professor of architecture, Mexican School of Fine Arts.
Vicente Lombardo Toledano, professor of philosophy, University of Mexico.
Ramón Mena, Chief, Department of Archaeology, National Museum of Mexico.
Tomás Montaño, professor of languages, University of Mexico.
Federico de Onís.
Miguel Palacios Macedo, professor of history, University of Mexico.
Carlos Pellicer Cámara, professor of Spanish, University of Mexico.
José Pijoán, professor, University of Toronto (Canada), formerly instructor in the Advanced School of Architecture, Barcelona, and in the Spanish School in Rome (plastic arts).
Manuel Romero de Terreros.
G. Oscar Russell, professor of Romance languages, University of Utah.
Mariano Silva Aceves, ex-secretary, University of Mexico.
Salomón de la Selva, professor of languages, University of Mexico, ex-professor of Romance languages at Williams College.
Jaime Torres Bodet, professor of literature, University of Mexico.
Julio Torri, professor of literature, University of Mexico.
Luis G. Urbina, professor of literature, University of Mexico.

CREDITS AND CERTIFICATES.

Students who have attended 80 per cent of the classes given in any one subject will receive a certificate of attendance; while those who pass the examinations and other tests as to progress given by the professors in the respective subjects will receive certificates giving the corresponding credits.

PATIO OF THE GOVERNMENT PALACE, QUERÉTARO, STATE OF QUERÉTARO.

CATHEDRAL AT MORELIA, STATE OF MICHOACAN.

TRANSPORTATION, ENROLLMENT, LODGING, AND EXPENSES IN GENERAL.

The Mexican Government will make a reduction of 50 per cent to all summer-school students traveling by the following rail routes: From Ciudad Juárez (El Paso) to Mexico City; from Piedras Negras, Texas, to Mexico City; from Laredo, Texas, to Mexico City; from the port of Manzanillo to Mexico City; and from the port of Vera Cruz to Mexico City (by the Interoceanic road). In order to obtain this discount prospective foreign students should apply in advance to the nearest Mexican consul, and those already in Mexico, to summer-

CHURCH OF SAN JOSÉ, PUEBLA, STATE OF PUEBLA.

school headquarters in the University of Mexico, where all enrollments will finally be made. The matriculation fees are:

1. For a course of five hours, weekly, $10 Mexican currency.
2. For a course of three hours, weekly, $6 Mexican currency.
3. For a course of two hours, weekly, $4 Mexican currency.

The cost of lodging in Mexico City ranges from 5 to 8 pesos (peso $0.49) per day in good hotels and *pensiones*. With but very few exceptions it is not the custom in Mexico to admit lodgers or boarders in private families, but the secretary of the summer school will supply a list of the hotels and *pensiones* in which lodging and table board may be obtained. Students are advised to go directly from the railway station to an hotel, leaving until later the question of finding a suitable room.

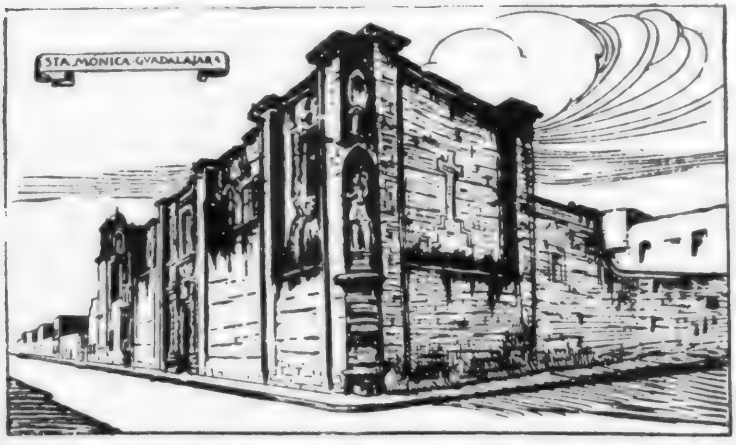
In this connection it is interesting to note that the University of Utah, which some time ago had registered 32 advanced students desirous of pursuing advanced studies in the summer school in Mexico

City, extends an invitation through the section of education of the Pan American Union to students from any other institution who may wish to accompany these students and take advantage of the special railroad and other arrangements which they will enjoy. The party leaves Salt Lake City, June 10, and may be joined there or en route to El Paso. The time between its arrival in Mexico and the opening of the University of Mexico summer session will be spent in sight-seeing and work preparatory to the advanced courses. A good hotel in Mexico City offers this party rooms at 2.50 pesos a day; two students may occupy one room.

II.

Other courses for those desiring to perfect themselves in Spanish in a Spanish-American atmosphere will be given this summer in Costa Rica and Porto Rico. The trip to the Central American republic, under the direction of Professor Santiago Gutiérrez of Ohio State University, and of his wife, a native Costa Rican, will have San José as its destination. There the courses in literature, history, and geography of Spain and Spanish-speaking countries, and kindred subjects will be given in cooperation with the Minister of Public Instruction. The round-trip fare from New York will be $330, living expenses averaging about $50 a month.

The University of Virginia has entered into an arrangement with the University of Porto Rico at Río Piedras, a suburb of San Juan, whereby credits for courses taken in the latter will be accepted at full value by the former. Frequent lectures will be given by distinguished Porto Ricans, and week-end trips will be taken about the beautiful island. The price of passage and all necessary expenses is fixed at $300.



CHURCH AT SANTA MÓNICA, GUADALAJARA, STATE OF JALISCO.

THE NEW TRANSANDINE RAILWAY FROM SALTA TO ANTOFAGASTA[1]

IT WAS decided some time ago that the opening up of the rich northern provinces of Argentina, by affording them a rail outlet to the Chilian port of Antofagasta, would be an enterprise mutually profitable to both the countries concerned. In consequence, it was resolved to commence construction, first on the Argentine side, of a new transandine railway line which, starting from the neighborhood of the city of Salta, would terminate at Antofagasta, after traversing the main range of the Andes, following approximately the traditional Inca highway through the mountains. The eastern terminal of the line connects with the existing Argentine State Railway system, a branch of which runs from Güemes, through the city of Salta, to Rosario de Lerma, this latter-mentioned township being the starting point of the new transandine line. This new line presents features of great interest, prominent among them being the low gradients which have been found feasible.

The northern provinces of Argentina which will be served by the new line are to-day very sparsely settled. This is due, to a very great extent, to the lack of a port outlet and to the enormous distances which separate them from the littoral. The center of the sugar-producing district is over 1,000 miles away from the city of Buenos Aires. The fertile plains and valleys of the region which the new line will open up make it one of the most promising in the world for future development, seeing that it produces every class of tropical and subtropical product, timber, cattle, and minerals.

The new line under construction will reduce the rail haul by about 700 kilometers. At the same time the sea haul to the United States ports will also be enormously reduced, considering that the distance from Antofagasta to Panama is only 2,200 miles. It is, moreover, anticipated that present trade routes will be very greatly modified by this construction, and that it will prove to be a factor of prime importance in promoting commerce between Argentina and the United States. Passenger traffic between the two countries also will undoubtedly increase, in view of the very appreciable reduction in time involved in the journey.

[1] From Review of the River Plate, March 10, 1922.

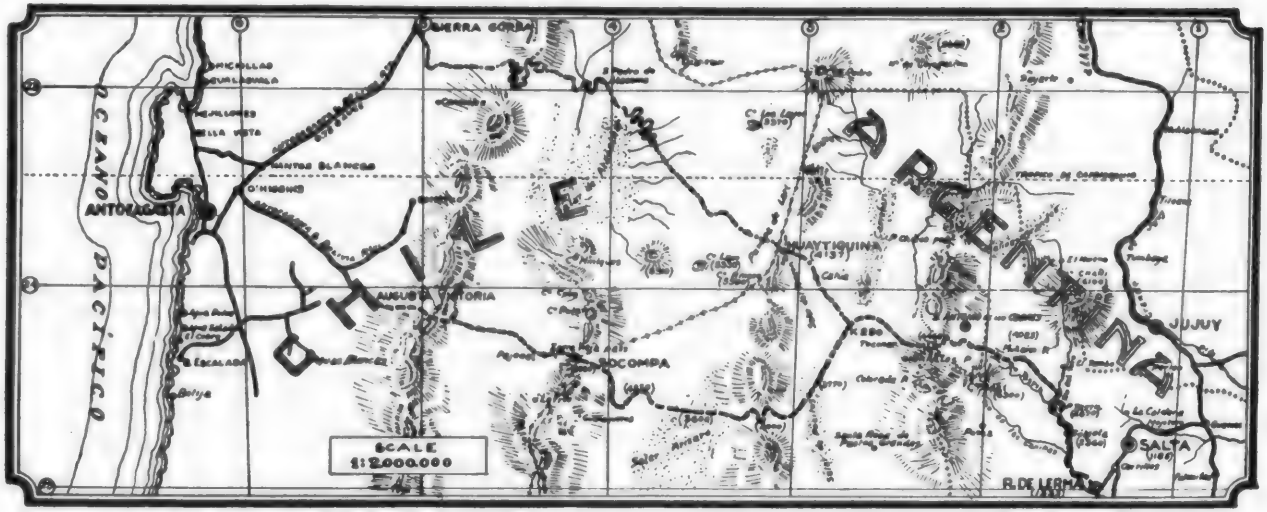
Taking the point of junction of the Argentine State Railway system at Güemes as a center, distances to the sea and to the United States and European ports are as follows:

Güemes to Buenos Aires	kilometers	1,501
Güemes to Antofagasta	do	756
Buenos Aires–Liverpool	miles	6,258
Antofagasta–Liverpool	do	6,770
Buenos Aires–New York	do	5,838
Antofagasta–New York	do	4,212
Buenos Aires–New Orleans	do	6,255
Antofagasta–New Orleans	do	3,620
Buenos Aires–Amsterdam	do	6,370
Antofagasta–Amsterdam	do	7,058

With regard to the increase in trade which this new route should bring about, Mr. Maury, the Chief Engineer of the Argentine section of this new international railway, expresses himself in optimistic terms. He predicts that north Argentina and east Bolivia will, in time, become large consumers of United States produce. The sugar industry, already on a firm basis, will acquire further impetus with the opening of the new route. Then, too, the existence of enormous fields of petroleum in the region has aroused the interest of American capital, and boring operations on a large scale have already been commenced. The output from these fields, Mr. Maury says, will in itself constitute a considerable source of traffic. He thinks it probable, also, that before very long a considerable proportion of the agricultural machinery used in Argentina will be imported by way of the new route. Mr. Maury thinks that the trade will not be all one-sided, as he affirms that the northern part of Argentina can become, in time, one of the great maize and cattle growing regions of the world. It is in anticipation of such developments that the new line, of which he is in charge, is being constructed to handle very heavy traffic.

Work on the Argentine section of the line was begun with great activity in April, 1921. The original surveys included several sections of track with gradients up to 7.5 per cent and normal grades of 3 per cent, but it was wisely determined to try for a 2.5 per cent line, compensated and with relatively easy curvature (150 meters radius). New surveys now being undertaken on this basis have reached the stage where it is possible to state that these standards will not be passed at any point. The work is being done by the State Railway organization, of which Mr. Domingo Fernandez Beschtedt is general manager and Mr. Arthur Acevedo chief engineer. Surveys and construction work are in the charge of Mr. Maury.

Leaving Salta, the line crosses the rich Lerma Valley for some 40 kilometers, and then interns itself in the gorge of the Rio Toro, which



Courtesy of the *Review of the River Plate.*

MAP SHOWING THE PROJECTED RAILWAY FROM SALTA TO ANTOFAGASTA.

The distance between Salta and Antofagasta, via Huaytiquina, is 910 kilometers; via Socompa, 800 kilometers. If the line is constructed via Huaytiquina, there remain to be built 326 kilometers of the Argentina section, and 385 kilometers of the Chilean section—a total of 711 kilometers. In addition, 170 kilometers of the section in Chile must be reconstructed. Of the Argentina section 29 kilometers—from Salta to Rosario de Lerma—have been completed. In addition to the 29 kilometers already completed via Socompa, there must still be 486 kilometers constructed in the Argentina section and 135 kilometers in the Chilean section. It would be necessary, in Chile, to reconstruct 150 kilometers to full standard meter gauge.

it follows as far as Puerta de Tastil at kilometer 105. In the first 30 kilometers of the gorge of the Rio Toro, the rise of the river bed is, in parts, in excess of the maximum grade, and due to the impossiblity of introducing development without recourse to rising tunnels, it was found necessary to employ two short sections of switchback, one of 1,200 meters and one of 800 meters, both placed at crossing stations to reduce operating difficulties to a minimum. At Puerta de Tastil (kilometer 105) the line leaves the Toro to swing directly west toward the coast, and here the principal difficulty was encountered. A tableland running in the right direction on practically maximum grade was found, but between its level and the bed of the Toro there exists a vertical rise of some 700 meters in an air line distance of 8 kilometers. Careful surveys of the region, of which a part were made by photo-stereoscopic methods, employing the Zeiss photo comparator, demonstrated the possibility of attaining sufficient development within the established grade, and at one point the line makes six spirals around a group of conical hills on practically a surface line. From a scenic point of view this is, without doubt, one of the most remarkable stretches of rail in the world. At the top of the climb, the traveler will have within his field of vision range on range of snow-covered hills, many of them 6,000 meters in altitude, while below him the line stretches away in eight distinct levels, the last being more than 2,000 feet below and so close that it looks as if a stone could be thrown into the river bed.

From here the line proceeds westward with very easy grade except at the crossing of the three distinct ranges in the Abra Blanca (4,100 meters altitude), the Abra Chorillos (4,500 meters), and the boundary line at the frontier, the crossing point of which has not yet been decided.

During the months of April to December, 1921, 90 kilometers of very heavy grading were finished with a total of more than 2,000,000 cubic yards of rock and hardpan. Likewise, during the same period 25,000 cubic yards of bridge and culvert masonry were completed. In this section some very heavy viaduct and tunneling work has been done, as well as side hill retaining walls. The lower stretches of the line are in a zone of torrential rainfall, and landslides will be the worst enemy of the constructor. In certain parts, to avoid difficulty in the future, the line has been carried under the mud slides in cut-and-cover tunnels, carried out in reinforced concrete. Possibly, considerable more work of this nature will yet be found necessary. In the higher altitudes, fortunately, the precipitation is very small, and there will be no difficulty with snow, a circumstance which places the new line at great advantage over the present Transandine Line in the Province of Mendoza.

The construction work is being given out on small contracts. The State Railway Department furnishes the equipment, and about 5,000 men, mostly Argentine "peones" from the mountain districts, are at present employed. These men are proving themselves extremely good workmen. The equipment includes 70-ton railway type Bucyrus shovels, very complete compressed-air equipment for the tunnel work and a large fleet of motor trucks. Well-mounted shops are being installed for the erection and repair of locomotives and plant, while in order to improve the living conditions of the workers, cooperative stores have been started, at which it is possible to purchase articles of good quality at cost price.

The gauge of the line is one meter, conforming to the gauge of the Argentine State Railway system, of which it will form a part. The line is being laid with 80-pound rails on red quebracho sleepers (1,500 sleepers to the kilometer). It is heavily ballasted with broken stone and gravel. Santa Fe type locomotives of 146 tons are being supplied by the Baldwin Locomotive Works. The first one has been delivered and is in service. Crude oil from the Argentine State Petroleum Workings is being used, and adequate installations for the storage of this fuel are in course of erection at Salta. So far work on the Chilean section of the line has not started, pending a decision regarding a variation of the originally projected route via Huaytiquina. The alternative proposed is that the line should cross the frontier via Socompa in order to connect up at Augusta Victoria (the important nitrate mine of the ex-kaiser of Germany) with an existing branch of the Antofagasta and Bolivian Railway. This branch line is of 75-centimeter gauge, and the idea is that it should be rebuilt to meter gauge and put into condition to cope with the heavy traffic of the Transcontinental Line.

Mr. Maury considers that the proposed variant would be very advantageous for Argentina, as it would reduce the distance between Salta and the sea by 10 kilometers, though it would mean increasing the Argentine section of the line by about 100 miles. This alternative is meeting with some opposition in the north of Chile on the ground that it would mean that the railway would not serve the richer mining regions and the only irrigated zone of that Republic.

PERUVIAN RAILWAYS

By Oscar V. Salomon,

Consul General of Peru, London, England.

WHERE the locomotive goes, man follows, and prosperity makes a brilliant third. The secret of Peru's slow progress in the past is to be found in this truth, for into the vast extent of her rich wilderness the locomotive has not gone, man has not followed, and prosperity has been denied her third place in the national economy. An organized railway system, which in other countries has given to development its momentum, has been wanting. Such a system would inevitably have accelerated the tapping of Peru's immense natural resources, linked up into a coordinate whole those centers of population which to-day remain in drowsy isolation, and called into being new towns and villages in commercially strategic spots where still reigns the silence of the wilderness. So long as the awakener of this wilderness—the locomotive—does not enter, so long will the great pampas refuse to yield the potential abundance of their golden soil, the cordilleras their illimitable wealth, and the leagues upon leagues of the montaña, the buried treasures of a world of which the mind of man is not yet conscious. When the business man of Mollendo, in the far south, can travel from his home town to Paita, in the far north, stopping en route to do business without at any stage exchanging his comfortable Pullman for the back of an erratic and hazardous mule, then may Peru be truly said to have "arrived."

PERU'S EXISTING RAILROADS.

One thousand eight hundred and forty miles of railway in a country of 650,000 square miles, with a population of 5,000,000 is, in these days of railway expansion, ridiculous. But it would be a great mistake, as well as unjust, to suppose that in this matter Peru, like her wilderness, sleeps. Ever since, in 1848, she constructed the first railway in South America—that short stretch of 10 miles connecting Callao with Lima—the Government of Peru, keeping steadily in view the vital necessity of railways as the key to the country's progress, has striven to allow no year to pass without its quota of laid rails. And these endeavors have not lacked the assistance of men of other lands who have felt, equally with Peru, the powerful attraction of that stored mineral wealth and

that unlimited potentiality which the pampas, the Andes, and the montaña never fail to exert upon the minds of the supermen * * *. Such a superman was the American, Henry Meiggs, to whom Peru owes her two principal railway systems, the Central and the Southern. In a country where the stupendous mountain ranges, full of hidden wealth, present to the ordinary mind insuperable engineering difficulties, Meiggs saw only the engineer's victory. His Central Railway, from Callao to the highest point of the Cordilleras, 3 miles above sea level, passes over 67 bridges, bores tunnels a mile or more long, emerging to cross bridges suspended hundreds of feet above gloomy ravines, like that which spans the Varrugas ravine, 300 feet high and 575 feet long, its central span being 235 feet in length and resting on two vertical towers each 175 feet high; or the Chaupichaca bridge, 365 feet long, 200 feet above the chasm where the train, emerging from one tunnel, rushes across this airy structure to enter at once another mountain tunnel. This railway, called also the "Oroya," is 240 miles long and cost £5,000,000. It is wisely and efficiently managed, and produces a profit. Meiggs was also the founder of The Southern Railway of Peru. But between the railheads of these two main lines—the Central at Pampas and the Southern at Cuzco—there is a gap of some 250 miles where the locomotive does not go, but which the Government is determined to connect up.

Besides these two main lines, the ports along the coast can show many short lengths, each independent, and there is also a considerable mileage of narrow-gauge lines which serve the sugar, cotton, and other interests. But all these small ventures, while aiding the general economy, are merely drops in the ocean of that transport whose network of lines should, and must eventually, cover the whole of Peru's vast area. When that great day arrives the pampas will bloom, the Cordilleras give up their treasures, the montaña its incredible wealth, while all along the line will spring up new centers of population. Moreover, between the Atlantic and the Pacific—between Brazil and the Argentine on the east and Peru on the west—stands the hitherto impassable barrier of the high Andes. This barrier, like every other barrier that nature has placed in the path of man, must yield to his advance.

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THE S. S. "PAN AMERICA."

The S. S. "Pan America," one of the newest of the United States Shipping Board Fleet, was launched at Baltimore and had her trial trip February 17, 1922. On February 26 the steamer went to New York to undertake regular sailings in the service operated by the Munson Steamship Line, for the United States Shipping Board, to the east coast of South America, making regular stops at Rio de Janeiro, Montevideo and Buenos Aires, together with Santos, northbound. The vessel sailed March 4 on her maiden trip to South America, on which occasion members of the Latin American diplomatic corps in Washington were present. Sr. Dr. Tomás A. Le Breton, the Ambassador of Argentina, and Dr. L. S. Rowe, Director General of the Pan American Union, made short addresses.

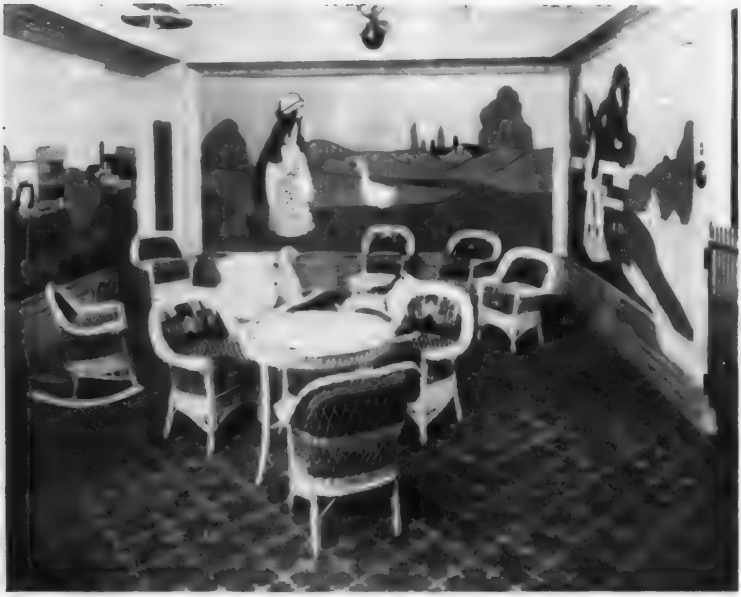
The ship has a displacement of 21,000 tons, is 535 feet long, 72 feet beam and 50 feet deep. The machinery is powerful and reliable and drives the vessel at the average rate of 17½ knots. The oil-burning ship is much cleaner and more desirable than the old type of coal-burning ship formerly employed in the South American service.

On the S. S. "Pan America" accommodations are provided for 413 passengers—239 first-class and 174 third-class. The public rooms are all on one deck and, though rich and sumptuous in appointments and furnishing, they have been so treated as to produce a cool, restful effect, particularly pleasing for tropical travel.

A PORTION OF SOCIAL HALL.

THE SS. "PAN AMERICA."

Upper: The Dining Room. Lower: One of the de luxe bedrooms.



THE SS. "PAN AMERICA."

Upper: A corner of the card room. Lower: Children's play room.

CUBA, OUR SISTER REPUBLIC[1]

By Señor Dr. Carlos Manuel de Céspedes,

Cuban Minister to the United States.

IT IS a compliment and a privilege to be invited to address this great association of yours at one of its famous gatherings, and I am very proud that you should have requested me to speak to you as your guest of honor on such an occasion.

In the first place, it is certainly to the sincere interest that you take in everything that relates to my country's welfare that this valuable distinction is due; it is also most fortunate for me that I should be at this time my country's accredited representative to this great nation, as I shall not only enjoy your generous and cordial hospitality and the marks of your esteem, for which I already feel so grateful, but I am sure that I may count on each and every member of your organization for that personal and warm sympathy that goes so far in strengthening the ties of true friendship between two peoples.

If Cuba and the United States were not so gloriously and intimately united by their historic past, such meetings as yours would do much to bring them closer together, through the free interchange of views and useful information and through what their outcome may bring in profit and good will. Already we can observe how our hearts and our minds are fast working together in harmony with the principles that recommend unity of purpose and mutually advantageous cooperation as the best policy between two sister nations.

I want to talk to you in a friendly and informal tone. No impassioned appeal for any particular cause will move you to emotion in this instance. It is a simple message of faith in the future of the business relations between our two countries that I bear and deliver to you. Yet, there is inspiration for great things in the apparently cold facts on which business is founded, since they are often the principal and best exponents of national ethics and the degree of national progress attained. It is by them that bankers such as you men who exert an enormous influence in the economic world and whose opinions are so highly valued can judge a foreign people and its right to credit in the sphere of commerce and finance; and it is pre-

[1] Address delivered at the Annual Banquet of the New York Chapter of American Institute of Banking, at the Hotel Commodore, Feb. 18, 1922.

Photograph by Harris & Ewing.

SEÑOR DR. CARLOS MANUEL DE CÉSPEDES

Envoy extraordinary and misister plenipotentiary of Cuba to the United States.

cisely to the validity of Cuba's right to such credit that I desire to direct your attention.

Not many years ago the entire economic structure of Cuba was in its infancy. Recognized as a free and independent nation in 1902, the Cuban people looked out on the great civilized world from a very narrow and colonial window.

Ruined by the long wars for independence that she had fought alone through half a century of glory and sacrifice until the United States of America unsheathed the sword and came to her aid, it seemed to her that 50 years of toil and experience would be necessary to bring the Republic in line with some of her older sisters of this continent in the economic field.

With special relation to banking, nothing could be more rudimentary than the instruments of credit which Cuba used in 1898; rates of interest were established by the caprice or rapacity of a few money lenders; checks, as a means of payment, were almost unknown in facilitating transactions outside of the capital of the island; a sound currency was not in existence and the circulating media were represented by some American money and a stock of Spanish and French silver and gold coins held in the country by an artificial premium. In a short time, however, some great banks were established; they opened branch offices throughout the country and, while without any such organization as your Federal Reserve system, they furnished credit as they grew, and helped the country wonderfully in its astounding rise to riches and prosperity. A national monetary system on the basis of gold, at the same value and fineness as American gold, was adopted, and the first step was then taken toward the complete establishment of a national monetary system to which Cuba had always aspired as a sign of her national sovereignty.

It is a well-known fact that those banks soon became depositories of hundreds of millions of dollars that were rapidly increased by the war-time sugar business; and if some people pointed to the failure of many banks in the recent crisis, which reflected a universal phenomenon that was rendered more crucial by the non-existence of a Federal Reserve bank that we now aspire to found, there are others who know that the Cuban people proved themselves at that time to be a great producing power and a saving people, as demonstrated by the records of exportations and by those of deposits and savings accounts.

It is true that during that period some fortunes were squandered and great amounts of capital mismanaged; that everbody or nearly everybody lived or tried to live in luxury and abundance; but when we consider, also that even now there must be over $100,000,000 of American currency in Cuba, we are struck by the producing power of the nation and its ability to preserve a part of its earnings. Such a field as this is evidently not a negligible one for the keen apprecia-

tion of business opportunity by American bankers and merchants; and as Cuba emerges from her appalling crisis with her lesson well learned perhaps better than others older and more experienced than she have learned it—we can still offer to the consideration of the world, as the best guaranty of what she will be in future, these eloquent facts. In her effort to aid the United States and the allied cause, a nation of 3,000,000 inhabitants produced more than 4,000,000 tons of sugar in a single crop; bought in a single year merchandise amounting to more than $500,000,000 from the United States alone; and accumulated hundreds of millions in deposit and over $100,000,000, as I have said, in United States currency in circulation or hoarded by the people.

Would your interest in Cuba not grow and your faith in her become stronger if you also were informed that the Government has effected economies to the extent of over $60,000,000, readjusting its expenses to the revenues of normal times? Would you not clearly see that all has not been squandered in the orgy of high prices and high living, when I tell you that many of those millions have been employed in bringing up the great sugar industry to its present point of power and efficiency; when you are told that in general those funds went toward making the country what it now is and that, notwithstanding her misfortunes, Cuba is and will continue to be, if you treat her in a just and equitable way, the foremost customer of the United States among the Republics of this continent and a magnificent place for American business and enterprise?

If on the canvas of this picture you now lay the rose-colored touch of her resplendent youth; the friendship and proximity to the United States, that are important assets in themselves; and the value of your great example, that beams like a torch of light in a world not yet free from darkness and misery; who of you can doubt of Cuba's future, or that she will eventually become a center of high civilization, a truly model republic of this hemisphere? It is toward this future, which is, in some respects, already the present, that I beg you to turn your kindest thoughts.

The confidence of the world may well rely on Cuba's ability to attain so high a standing. Your faith will not fail her, and when you turn the pages of your great and heavy books and carry the results of the old figures over to the new account, I feel confident that you will place to the credit of Cuba her best achievements of the past and her will to triumph in the future.

THE JUNIOR RED CROSS:

THE LEAGUE OF CHILDREN FOR CHILDREN.

By Louise Franklin Bache.

THE CRIMEAN WAR and its attendant suffering brought Florence Nightingale and her little band of English nurses before the eyes of the world and laid the cornerstone for the humanitarian nursing service of to-day. The terrible battle of Solferino, Italy, in the summer of 1859, awakened Henri Dunant, a Swiss, to the realization of the need for a society which should minister to the wounded and dying in war irrespective of the side they might be on; the result was the formation of the international brotherhood of Red Cross societies at the famous Geneva convention, August 27, 1864. The last great war also left a legacy. It is the *league of children for children*, known as the Junior Red Cross, which sprang into existence with the entrance of the United States into the European war. In response to a proclamation by Woodrow Wilson, then President of the United States, the school children of the country were formally organized under the name of Junior Red Cross, January 25, 1918. Little more than a year after the issuance of the proclamation—in February, 1919, to be exact—11,000,000 children had enlisted under the banner of the Red Cross, and there had been contributed by them surgical dressings, hospital garments and supplies, articles of comfort for soldiers and sailors, and clothes for the refugees in war-stricken countries to the value of $10,000,000.

But this was war work, and with the cessation of hostilities there came the question of demobilization. Educators everywhere rose to remonstrate. Here were millions of boys and girls trained in the ideas of service, who were not only enthusiastic but anxious to go on with their work. What better training for good citizenship could be found than the utilization of "head, heart, and hands in the service for the common good?" The period of reconstruction was at hand.

There was need for children as well as for their elders in the performance of the tasks ahead. So it happened that the Junior Red Cross was not scrapped with many of the war-time relief organizations, but was recognized as a permanent institution with constructive work to perform. With its peace-time program came the larger vision of a "league of all children." "If we can link together the children of all nations in world-wide bonds of understanding and friendship," said an educator in Europe, "there will then have been achieved an unrivaled power for the future welfare of all nations

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THE MARCH OF THE

(Frieze by Anna

Left to right: United States, Italy, Great Britain, France, Czecho-Slovakia, China,

and for the guaranteeing of international justice and peace." So a world perspective was given to the Junior Red Cross movement.

THE PROGRAM OF THE JUNIOR RED CROSS.

The program of the Junior Red Cross of the United States is one of service. Through it the school children are given an opportunity to participate in all Red Cross projects suitable to their ages. The program is divided into two fields—domestic and foreign. At home the Junior Red Cross volunteers to put its machinery in motion for all community projects tending toward better health, fire and accident prevention, community beautification, and other forms of civic activities. The production of garments, the making of toys, the furnishing of hospital supplies and comforts still goes on as the occasion demands. Many children owe hospital care, warm clothing, proper nourishment, crutches, eyeglasses, and dental attention to the Juniors, whose motto "I Serve" recognizes a friend in every child, no matter what his nationality, color, or creed. The beauty of the entire Junior program is its elasticity. Wherever there is a child in need, there the Junior Red Cross finds its work.

The foreign program is made possible by the National Children's Fund, which was authorized by the American Red Cross for the purpose of giving boys and girls the privilege of helping children of other lands who need assistance. This fund is devoted to such enterprises for children as day and vocational schools, playgrounds, scholarships, school gardens, school lunches, vacation camps, health games, welfare centers, and children's hospitals. The amount of money which each Junior auxiliary should raise for the National Children's Fund is a matter to be decided by the auxiliary, but it is urged that each auxiliary, no matter what its size, make some contribution to the

JUNIOR RED CROSS.

Milo Upjohn.)

Jugo-Slavia, Spain, Belgium, Poland, Holland, Albania, Rumania, Greece, Montenegro.

fund. The fund is raised by entertainments, bazaars, salvage sales, gardening, and various other activities, as well as by individual savings and sacrifices. With the money thus contributed the boys and girls of the United States are helping in Albania, Belgium, China, Czechoslovakia, France, Hungary, Italy, Austria, Montenegro, Poland, Rumania, Serbia, and in the Virgin Islands.

From the contacts with children of other lands has grown a system of international correspondence which is, perhaps, the richest product of the Junior Red Cross movement. This correspondence includes an exchange of letters, post cards, pictures, samples of school work and handicraft. Nothing can do more to awaken friendly interest in other lands and peoples than the personal touch achieved through such a correspondence. School people in many parts of the world have indorsed the movement, because they realize its educational values. Letter writing and composition take on new meanings; geography, history, and civics separate themselves from the drabness of the schoolbooks and stand forth clothed in vivid, living colors; foreign languages gain an added stimulus; countries and peoples, once merely a list of printed names, become living, real things. With this close acquaintanceship misconceptions and prejudices disappear and friendly and affectionate interest takes their place. Thus does the Junior Red Cross lay the basis for constructive, broad-minded citizenship.

A little schoolgirl in France has expressed her idea of international correspondence in these words: "The ocean is so great that the seagulls do not cross it. During seven days and seven nights the giant steamships of America, going at full speed, drive through the deep waters before the lighthouses of France come into view; but from one side to the other hearts are touching." There are active Junior

Red Cross societies in Czechoslovakia, Poland, Hungary, Canada, and Australia. England, France, Italy, Spain, Argentina, Belgium, Bulgaria, Austria, China, and Yugoslavia are planning similar organizations. A league of friendship uniting boys and girls all around the world has started. Can anything be of more value to the children of every land than to have a part in this great movement?

THE ORGANIZATION OF THE JUNIOR RED CROSS.

The school is made the unit of the Junior Red Cross organization. Any school –public, private, or parochial—may be enrolled as a school auxiliary on the pledge of participation in the work of the

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THE JUNIOR RED CROSS. (*Drawn by Ann Milo Upjohn.*)

The foreign program is made possible by the National Children's Fund, which was authorized by the American Red Cross for the purpose of giving boys and girls the privilege of helping children of other lands who need assistance.

Red Cross, by contribution to the Chapter School Fund, by producing Red Cross supplies, or by engaging in other Red Cross activities approved and supervised by the Chapter School Committee. The Chapter School Committee is the connecting link between the local Red Cross Chapter and the school. The chairman of the committee should be the local school superintendent or some one identified with the school board or in close sympathy with school interests. Its membership generally consists of school authorities, teachers, and representatives of other local agencies interested in child welfare. The work of the school auxiliaries is directed and supervised from the respective headquarters of the several geographic divisions, into.

which the United States is divided for the purpose of Red Cross administration, each division reporting to and supervised by national headquarters at Washington, D. C. To become a member of the Junior Red Cross, a child may earn his individual membership in one of three optional ways: (1) By contribution to the service fund, preferably secured by sacrificing a small pleasure; (2) by participation in group projects to earn this service fund; (3) by performing a significant personal service for school, chapter, or community. Any one of these special services makes it possible for a child to inscribe his or her name on the Junior membership roll and brings with it the privilege of wearing a Junior Red Cross service button, bearing

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THE LEAGUE OF CHILDREN FOR CHILDREN. (*Drawn by Ann Milo Upjohn.*)

From the contacts with children of other lands has grown a system of international correspondence, including an exchange of letters, post cards, pictures, samples of school work and handicraft.

the motto, "I Serve." The children are taught that to earn one's service fund by his or her own efforts is the only true standard of giving. So has the old creed of chivalry been revived. "Not what we give but what we share, for the gift without the giver is bare;" and so has an adventure been launched "which," to quote Sir Philip Gibbs, "may lead to the discovery of new worlds, not divided like our poor old planet by innumerable frontiers of prejudice and ignorance, but united by friendly understandings, by compassion for the inevitable sufferings of the human family, and by helpful service one to another."

Courtesy of Honorable William Miller Collier, American Ambassador to Chile.

THE AMERICAN EMBASSY BUILDING IN SANTIAGO, CHILE, RECENTLY PURCHASED BY THE UNITED STATES.

NEW AMERICAN EMBASSY BUILDING, SANTIAGO, CHILE

THE PROPERTY recently acquired by the United States Government for its embassy in Chile consists of a large lot of about 180 feet frontage and 300 feet depth, situated on the Calle Merced, fronting on the beautiful Parque Forestal, along the border of the Río Mapocho, at the foot of the Cerro San Cristobal. The whole range of the Andes as well as the Coast Range, is in view. The situation is the finest in Santiago from the residential standpoint, while the place also possesses the advantages of accessibility and of comparative nearness to the Government offices.

There are three separate and distinct buildings upon the grounds, all of them completed this year, namely, the palatial main house, a smaller building containing 12 rooms to be used as the chancery, and an attractive porter's lodge.

The main house is three stories in height, of sandstone finish, and equipped with all modern improvements of the latest design and most perfect type. It contains a spacious entrance hall, library, salon, music room, ballroom, dining room, billiard room, banquet hall, conservatory, two grand marble staircases, and a large number of bedrooms, with a terrace garden upon the roof. Architectually the house is of great beauty, having numerous porticoes, piazzas, and terraces; while the interior is richly finished in marble and imported American woods, with an abundance of carving and ornate paneling.

The property cost its original owner approximately $700,000 American money, but owing to the depressed business conditions in Chile, and the absolute stagnation of the real estate market, Ambassador William Miller Collier, who conducted the negotiations for the United States Government, was able to get it for the amount appropriated by Congress for the purpose, namely, $150,000.

Probably no embassy of any Government in any capital in the world surpasses this one in beauty, serviceability, or fitness for the use to which it is to be dedicated.

The advantages to the American Government in acquiring this property are not only that it provides a fitting and an appropriate residence for its ambassador in Chile, but also a commodious office building or chancery in which all the secretaries of the embassy and all the attachés—military, naval, and commercial—can have their offices together, thus securing a cooperation which will mean a considerable saving of expense and which will greatly promote the efficiency of the work of the embassy. The saving in rent will be $10,000 a year. Other possible economies will bring the total annual saving up to $15,000, representing the interest on a capitalization of $300,000. It is expected that Congress will promptly make a sufficient appropriation for the suitable furnishing of the building. The embassy will begin occupancy of it as soon as furnished.

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NATIVES WORKING IN THE PHOSPHATE DEPOSITS OF NAURU ISLAND

NAURU ISLAND

THE PHOSPHATE TREASURE ISLAND OF THE SOUTH PACIFIC.

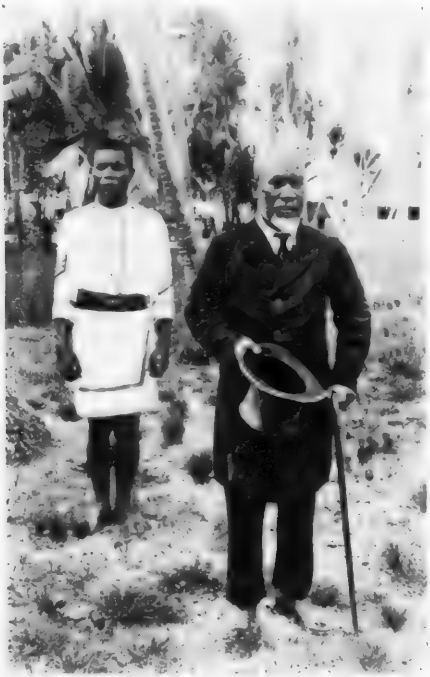
By Thos. J. McMahon, F. R. G. S.

WHEN THE possessions taken from Germany during the war were divided Great Britian, Australia, and New Zealand were given the mandate for the administration of Nauru Island, a dot of land, 12 miles in circumference just south of the Equator, and between the Marshalls and Solomons Islands groups. Nauru would be a little over 2,000 miles from Java. This diminutive island has 5,000 acres and is famous for its valuable deposits of the highest grade phosphate of lime—a magic soil fertilizer.

Thirty years ago Nauru was an island no one thought much about, as no one realized the immense wealth that lay deep and snug among the coral pinnacles of the low-set hills in the center of the island. American whalers would call in those days for water and pumpkins, and the natives then got the reputation of being so hospitable that the island was called Pleasant. After American whaling activities ceased in the South Pacific, few ships ever then touching at Nauru, came the Germans, who took possession of the island and named it Nauru. But even the Germans were not aware of the great value of the island.

One day a British vessel put in for supplies of water. On board was an expert in phosphate and guano. This man roaming about in the hills soon formed an opinion of Nauru which was to change it from an island of no consequence into a veritable treasure house of one of the most needed accessories, assuring the harvests of the agricultural world. To make a long story a short one, in two years' time a vast industry was organized with every modern appliance of machinery and every comfort and convenience for a large scientific and clerical staff, and hundreds of Chinese and natives from other South Pacific islands were busily engaged digging and blasting out in thousands of tons every month the precious phosphate. Ships came from every country in the world to carry away the wonderful fertilizer; thousands of tons a month grew to hundreds of thousands of tons a year, and still the hills of the tiny island look as if they have only been scratched. Both British and German experts have estimated there are nearly fifty million tons of the phosphate, and that many generations will come and go before Nauru is exhausted.

The bounteousness of Nature is shown in the composition of this magic product phosphate of lime. For years it is impossible to tell how many countless numbers of sea birds were attracted to this tiny island, where neither man nor animal disturbed them, and where they found the superabundance of fish usual to deep-sea coral islands. The birds subsisted on fish and created vast deposits of guano, rich in phosphate, which, mingling with the coral rock rich in lime, were transformed by natural processes, assisted by periodic



HIS MAJESTY KING OWEIDA OF NAURA ISLAND.
Native police attendant in the rear.

copious rains, alternate droughts, and occasional and complete submergings of the island by the sea, into that potent, chemical factor phosphate of lime. To-day scarcely a bird is to be seen on the island; but a rich treasure has been handed over to the use and ingenuity of men.

Though the island was German owned, it was British enterprise that began the phosphate industry, and until the war the utmost harmony existed between the British and German employees and the German administration.

STREET SCENES IN THE PHOSPHATE OF LIME SETTLEMENT ON NAURU ISLAND.

Upper: A business street of the settlement. Lower: A residential street.

This phosphate industry comprises a settlement having many miles of electric and steam trains, telephones, electric light, fresh and salt water systems, refrigerators, and a fine sewerage system. There are hospitals for the whites, the Chinese, and the natives under European doctors and nurses.

There are great public laundries, excellent houses for married and single workers, a public hall, attractive recreation and reading rooms, and well laid out grounds for outdoor sports. There is, moreover, one of the most powerful wireless installations in the world, and ships are every week bringing news and supplies.

Nauru Island, although only 33¼ miles south of the Equator, is one of the healthiest spots on earth, malaria and other tropical ailments

THE NATIVE POLICE OF NAURU ISLAND PRESENT ARMS.

being unknown, and the white community is one of the jolliest and happiest of the island world.

Of special interest are the natives of Nauru, some 2,000 in all, ruled by a native king a very remarkable man. When in 1914 the British took over the administration of this island from the Germans, their first care was to make the condition of the natives more satisfactory than it had been; though they had never been exploited by the phosphate industry. Under their king, Oweida by name, they accepted a government having laws partly British and partly native or tribal. They were encouraged to clean up the island, improve the

coconut plantations, and to work for good wages in the phosphate fields. This they have done with the result that they are a happy and contented race, enjoying perfect health and having every comfort a native people can desire. Within the last three months British administration has given place to Australian, but the same excellent régime is being maintained.

The Nauruans are noted for their good manners, the smallest child bowing to a stranger with the utmost grace and wishing, in a greeting, every blessing that one kind heart can desire for another. The Nauru women are accounted by many travelers the handsomest, best figured women in the Pacific, and certainly in their festive and dance dresses they show a distinction in taste and designs which is

ALONG THE RAILWAY LINE.

truly remarkable. Their dances are clever and not at all monotonous, while their singing and chanting have real melody.

Every native man and boy, and a good many young women, possess bicycles, and most picturesque cyclists they make in their coconut fiber *ridis*, or loin clothes. Practically every house has a sewing machine, which is put to many uses, but now that the native dress is going out of fashion—which is a pity—shirt- and dressmaking have become a part of the household duties of the women; indeed, the men are often found to be quite expert tailors.

The national sport of the Nauruans is frigate-bird capturing. The greatest ambition of a native is to own more of these mopy-looking

birds than any other native of his village. The tribal wealth of a native is estimated by the number of well-filled roosts of frigate birds that he can maintain; and maintenance, it may be added, means much fishing to feed the birds. These birds, uninteresting and always apparently asleep on the roost, are capable of an almost human cunning in the manner in which, as decoys, they can be

AN UP-TO-DATE RAILROAD CROSSING IN NAURU.

The warning sign is lettered in five languages: English, Nauran, Marshall Island, Gilbert Island, and Chinese.

trained to capture other birds. On festival days, whole villages meet to contest supremacy in their decoy birds. The king presides over the tournament, and the roosts are set up, that of each village by itself. When the decoy birds are set free not a wild bird can be seen or heard. Up soar the decoys until lost to sight. Then, presently, the air is rent by the screams of wild birds gradually

enticed to the roosts with the tethered tame birds. As they approach the roosts, becoming suspicious of the men hidden beneath them, the wild birds, deciding that matters have gone far enough, try to soar away. Now the real labor begins. With open bills and wide-spread wings the decoys attack their victims, bar their way, head them off, circling round and above them until they are driven to the roosts, bullied and exhausted.

At the end of the tournament a count is made, and the village and the villager with the largest number of captive birds to their credit are publicly praised by the king, whereupon feasting and dancing begin.

Small as Nauru is, it is a very beautiful island. A fine road, entirely coconut-palm shaded, encircles the island, making a pleasant walking, driving, and riding space for the white inhabitants. In the hills are many lagoons of great beauty, the clear waters reflecting the villages, coral rocks, and palms. The natives own areas of lagoons, as they do areas of land, in fenced in portions of which they keep fish for food. These fish get so tame that they can be caught in the hand.

Nauru will always be prominent in the South Pacific owing to its commercial importance, but the day will surely come when regular tourist steamers will visit this new and interesting treasure island, and the world will come to realize the wonders of its phosphate industry, the charm of its natives, and the beauties of its scenery.

A LAGOON, NAURU ISLAND.

The natives fence in areas of water in which they keep fish brought from the sea, to be caught for a meal at a moment's notice.

AGRICULTURE, INDUSTRY AND COMMERCE

There is no conceivable cause of friction or misunderstanding that may arise between the business people in the United States and their commercial connections in any one foreign country that will withstand the determination of the best elements in the mercantile communities of both to judge fairly and justly and to agree upon an equitable remedy.

—A. J. Wolfe,
Chief, Division of Commercial Law, United States Department of Commerce.

ARGENTINA.

Frozen meat in Europe. The first consignment of Argentine frozen meat to Germany, says the Review of the River Plate, arrived at Hamburg last January. A new cold-storage system will be installed in vessels intended to carry Argentine meat; the capacity will be 700 tons. A cooperative society has arranged for retailing Argentine meat at 55 shops in Hamburg and its vicinity, and another company intends to open 500 stores throughout Germany for the sale of this and other Argentine food products.

In Paris a syndicate has been formed to import Argentine cattle and frozen meat into France. The group of bankers and business men interested in the matter proposes to open 30 butcher shops in Paris and an equal number in the Provinces, all with modern equipment for the handling of Argentine chilled and frozen beef.

Iguazú Falls power. The Brazilian diplomatic representative in Buenos Aires has informed the Argentine Minister of Foreign Affairs that the Brazilian Government has accepted the general conditions of the projected treaty proposed by the Argentine Ministry of Foreign Affairs for harnessing the Iguazú Falls and transmitting the electric current to Buenos Aires and important cities en route.

Railways. The deed of amalgamation between the Argentine Transandine Railway and the Chilean Transandine Railway has been signed.

Truck test. According to the report of United States Trade Commissioner George S. Brady, in the auto-truck test carried out by the Argentine Army, which was for speed in capacity-loaded trucks over dirt roads, an American truck won over three German machines.

Buenos Aires-Montevideo air route.—From December 17 to January 16, the first month's operation of the above air route, 113

passengers were carried, and 10 extra trips made in addition to the regular biweekly service.

TELEGRAPH LINES.—Additional telegraph lines are to be built in the various Provinces at a cost of 500,000 pesos national currency.

FRUIT TRADE. An express freight train service with refrigerator cars has been installed on the National Railways to transport fruit from the Province of San Juan to Rosario and Buenos Aires.

With the recent successful shipments of fruit to New York and the Argentine-Brazilian reciprocity agreement it is evident that the fruit-raising business is to be an increasing source of revenue to the country. This agreement has removed the import duties of both countries on fruit sent from one of these countries into the other. Brazil exports to Argentina principally bananas and oranges, while Argentina ships to Brazil grapes, peaches, plums, apricots, and other fruits of the temperate climate.

REDUCED RATES TO BRAZIL, URUGUAY, AND ARGENTINA.—See page 610.

BOLIVIA.

CHILEAN-BOLIVIAN MINING COMPANY. The Gallofa Consolidated Co. of Colquechaca has joined other organizations to form a stock company known as the Compañia Minera Gallofa-Colquechaca The initial capital of the company is 550,000 shares of a pound sterling each, to be used exclusively for the installation of machinery and the acquisition of new properties. At present the company is producing about 5,000 marks of silver a month, and can produce 1,500 quintals of tin bars. (A mark equals 230 grams; a quintal equals 101.44 pounds.)

STANDARD OIL CO. This company, which has recently acquired large holdings in Bolivia, as already noticed in the BULLETIN, has lately intensified its explorations in the different fields where oil is supposed to exist. Engineers are studying different deposits, and the machinery necessary for the first borings has arrived. Three wells will be sunk at first—one in Santa Cruz, one in Tarija, and a third in Chuquisaca.

BRAZIL.

SILK CULTURE AND MANUFACTURE. The director of the sericulture station at Barbacena, State of Minas Geraes, as reported by the assistant United States trade commissioner, says that the results obtained in various States through the efforts of the experimental station, which is under the Ministry of Agriculture, have been extremely encouraging, and that the industry offers great economic possibilities. The culture of the mulberry tree is easy, and both the tree and the silkworm are free from diseases and pests prevalent in other countries. More than one crop of cocoons a year can be obtained, the

silk being of excellent quality. An interesting feature of the sericulture station is its model silk factory for both spinning and weaving.

A silk factory will be erected in Campinas, São Paulo, by the purchaser of a large plot of ground, 77,703 square meters in extent.

CAUSTIC SODA FACTORY.—Early this year a large caustic soda plant was opened in Rio de Janeiro. It is constructed along modern lines, and uses the electrolytic process in the manufacture of caustic soda and chlorine, which in turn will be the bases for numerous subproducts, heretofore imported, necessary to the industrial life of Brazil. The present capacity of the factory is 5,000 kilos of caustic soda 76° and 10,000 kilos of calcium chloride 35 per cent in 24 hours. The company will also manufacture chlorine, both gas and liquid, for water purification, bleaching, manufacture of hydrochloric acid, disinfectants, and as a poison for ants. (*United States assistant trade commissioner, Rio de Janeiro.*)

AERIAL LINES.—Two lines of aerial navigation under Federal control are to be inaugurated September 7, 1922, between Rio de Janeiro and Porto Alegre, capital of Rio Grande do Sul.

REDUCED RATES TO BRAZIL, URUGUAY, AND ARGENTINA.—In April the Lamport & Holt Steamship Co. reduced its fares approximately $100 to Rio de Janeiro, Montevideo, and Buenos Aires. This makes the one-way fares $315 to the first-named city, $360 to the second, and $370 to the third, with a special round-trip rate of $450 to Rio de Janeiro, beginning July 1. The Munson Line also reduced its rates, offering passage at $295, $345, and $350, respectively, to the cities mentioned, and $450 round trip to Rio de Janeiro, beginning July 1. Both lines sail from New York.

NATIONAL SUGAR EXCHANGE.—See page 620.

FEDERAL AID FOR PUBLIC ROADS.—See page 621.

CHILE.

CHILEAN PRODUCTS IN BRAZIL.—Chilean exporters are anxious to take advantage of the free zone established by the Government of Uruguay for imports and exports to and from Brazil. The free zone is provided with warehouses and other facilities for the storage of merchandise for a period not over one year, free of taxes excepting the nominal charge of 1.50 pesos gold per ton for loading and unloading. Paraguay has already made use of this free zone, and Chile will be equally benefited by it. It has been proposed to carry Chilean products in Chilean vessels to the Uruguayan free zone, from which they will be delivered to the different ports of Brazil by the Lloyd Brasileiro, and vice versa. Such an exchange will bring to Chile marketable Brazilian products such as coffee, mate, sugar, rice, and cotton, while Chile can furnish Brazil with peas, lentils,

raisins, flour, and wines, both countries enjoying the mutual decrease in price.

FRUIT EXPORTATION. Chilean fresh fruit, successfully exported to New York as already noted in an earlier number of the BULLETIN, is being shipped increasingly in response to the demand. The steamer *Ebro* recently sailed from Chile for New York with the largest cargo of fruit yet shipped; the value was placed at $1,000,000. Special arrangements for immediate shipping, the appointment of a fruit inspection official, the remission of export duties, and reduced freight rates, together with the difference in the rate of exchange, are expected to bring to Chile much profit in the new export trade. The Pacific Steam Navigation Co. has installed the first refrigeration plant in its steamer *Oriana*, thus removing the danger of the fruit spoiling in transit.

FRUIT SHOW AND AGRICULTURAL MEETING.—Last March an important fruit and vegetable show was held in Santiago under the auspices of the Sociedad Agronómica of Chile. Besides the main section there were exhibits of machinery, tools, chemical fertilizers, remedies for use against plant diseases and insects, and model packing boxes. Producers of the products in question, who assembled at the time of the show to exchange ideas and plan the coordination of their work, were addressed by technical experts, whose remarks were illustrated by films lent by the United States Department of Agriculture.

COLOMBIA.

ROAD TO SALTO DE TEQUENDAMA.—The Automobile Association of Bogotá secured the passage of Law No. 4 of 1922, by virtue of which the road from Chusaca to Tequendama Falls is declared a national highway. The Government is authorized to negotiate a loan of 30,000 pesos for the reconstruction of this highway, the payment of which will be guaranteed by the excise tax.

FOREIGN TRADE. The imports and exports for the first half of 1921 were as follows: Imports, 65,179,541 kilos, valued at 19,179,105 gold pesos; exports, 167,853,885 kilos, valued at 31,549,296 gold pesos.

HYDROPLANES. The report of the gliders of the German-Colombian company, which operate on the Magdalena River, is as follows for the last four months of 1921:

Month.	Number of hydroplanes.	Number of flights.	Kilometers traveled.	Passengers.	Freight carried.
					Kilos.
September	2	41	8,265	27	3,980
October	3	67	15,190	57	5,840
November	4	105	17,040	126	10,093
December	4	94	17,150	93	9,337

CUBA.

POTATOES TO THE UNITED STATES. The Bureau of Vegetable Sanitation of the Department of Agriculture has secured the permission of the Federal Horticultural Commission of Washington to permit the entrance of Cuban potatoes into the United States when accompanied by a certificate issued by the bureau.

CORN RAISING IN RURAL SCHOOLS.—The Secretaries of Agriculture and Public Instruction have arranged a corn-raising contest in the rural schools of the Province of Habana. Three prizes and 10 certificates will be awarded to the schools presenting the best 50 ears of corn raised on a plot of 200 square meters from seed furnished by the Secretary of Agriculture.

DOMINICAN REPUBLIC.

IMPORTANT ROADS.- It has been decided to complete the highway from Santo Domingo northwest across the entire island to Monte Cristy, and also the transverse highway from Santo Domingo to San Pedro de Macorís, Hato Mayor, Seybo, and Higüey, near the east coast, and west from the capital to Baní, Azua, San Juan de la Maguana, and Comendador.

SUGAR.- The Secretary of Agriculture states that in 1921, 17 of the 20 centrals in the Republic were in operation. The Province of San Pedro de Macorís led in the number of centrals (8) and in the quantity of sugar (728,421 bags), while the Ingenio Romana alone, in the Province of Seybo, produced 285,505 sacks of varying weights, and exported to Porto Rico 73,025 tons of cane. The total for the Republic in 1921 was 1,291,173 bags.

Three large warehouses capable of storing 175,000 bags of sugar have recently been opened, reports the American vice consul at Santo Domingo. Loans will be granted by various Dominican and American financial institutions against receipts for the deposit of sugar.

ECUADOR.

EXPORTS OF 1920. The value of the chief exports of 1920 was as follows: To American countries, cacao to the amount of 22,810,267 sucres; coffee, 612,514 sucres. To Europe, cacao, 12,763,130 sucres; coffee, 304,395 sucres. The total amount of rubber exported from Ecuador in 1920 was 139,408 kilos, worth 154,571 sucres; cattle hides, 614,056 kilos, worth 528,538 sucres; calf hides, 1,143 kilos, worth 667 sucres; lambskins, 7,453 kilos, worth 4,201 sucres; goat skins 10,713 kilos, worth 12,829 sucres; alligator skins, 28,391 kilos, worth 8,000 pesos; deer skins, 20 kilos, worth 60 sucres; hides for shoes, 51 kilos, worth 2,270 sucres; other hides, 6,858 kilos, worth 5,300

sucres; unshelled tagua nuts, 9,155,679 kilos, worth 1,694,718 sucres; shelled tagua nuts, 13,943,291 kilos, worth 4,183,922 sucres; toquilla straw hats (Panama hats) to American countries, 132,295 kilos, worth 2,339,206 sucres, and to Europe, 200,261 kilos, worth 3,628,936 sucres. (*Comercio Internacional, Guayaquil, December, 1921.*)

REPORT OF AGRICULTURISTS' ASSOCIATION OF ECUADOR.—The report of the President of the Association of Agriculturists of Ecuador gives account of the efforts of this body of cacao growers to maintain a fair price for their product through the year 1921. At each considerable drop in price the association entered the market and bought varying numbers of quintals of cacao, in each case stabilizing the market and keeping the wholesale price at or near 21 sucres per quintal. Since the beginning of 1922 the prices have risen considerably, and at the writing of the report February 16, 1922, were as high as 36 sucres per quintal for "Arriba Superior." A profit of 97,958.84 sucres was made on the cacao bought by the association. The export tax of 3 sucres per quintal (46 kilos) of cacao is devoted to the purposes of the association, as explained in the February, 1922, BULLETIN.

GUATEMALA.

BANANAS. According to the report of United States consul Arthur C. Frost, banana raising on a commercial scale is being undertaken on the Pacific coast of Guatemala. An American fruit company has 2,000 acres 15 miles west of San José de Guatemala planted to bananas. The company will overcome the lack of rainfall by irrigation, and will ship the fruit to the western ports of the United States, which are now supplied with about 100 carloads of bananas a week from New Orleans.

CHICLE. A 10-year concession has been granted by the Government for the extraction of chicle in the unoccupied territories of the Department of Petén. The concessionaries engage to export 75,000 quintals of the product within this time, each quintal to weigh 46 kilos net, and to be subject to a Government tax of $5 gold.

HAITI.

FIRE PROTECTION. A large pump installed next to the customhouse in Port au Prince will make sea water available for extinguishing any fires occurring near the water front.

AGRICULTURAL EXPOSITION. A national agricultural exposition took place early in May in Thor, Port au Prince.

HONDURAS.

ROADS. Work was begun March 1 by the municipality of San Pedro Sula at Palmar on its section of the Santa Rosa de Copán

road. It is expected that this road will have a branch to Santa Bárbara and will be extended to Ocotepeque on the Salvadorean frontier, passing through the Departments of Cortes, Santa Rosa, Santa Bárbara, and Ocotopeque, and thus connecting the towns of the west with the Atlantic coast.

NEW FACTORIES. A factory for mosaic wall and floor tiles was opened in San Pedro Sula on January 1.

Another new industry has come to San Pedro Sula in a factory for ready-made clothes for men, women, and children. The machines for making buttonholes, cutting, and sewing are run by electricity. The factory has about 40 operators under a superintendent from the United States.

MEXICO.

ABOLITION OF PASSPORTS. The decree abolishing passport requirements between Mexico and the United States became effective on February 1 last. The news was received with joy all along the border, for up to that date the existing passport regulations had seriously interfered with the commercial and social intercourse between the two countries, in numerous instances preventing Mexican merchants from entering the United States solely because they did not possess the prescribed visé. The issue of this decree is largely the result of efforts made by the American Border Chambers of Commerce, which submitted to the Department of Commerce a petition signed by 32,000 American citizens representing all commercial organizations along the frontier, from Brownsville to San Diego. Only the regulations of the immigration bureaus of the two countries will be enforced in the future. While the abolition will mean a loss of revenue, it will be more than compensated by the increased commercial interchange.

NEW STEAMSHIP SERVICE. The Compañia Naviera de los Estados de Mexico, S. A., will operate a fleet of 14 new, fully equipped steel steamers between Salina Cruz, Mexico, and Vancouver, Canada, calling at 15 Mexican ports. The first three of these steamers are already in active service and are soon to be followed by the others, thus establishing a regular service with weekly sailings along the west coast. The National Railways of Mexico have authorized their agents to issue "through bills of lading" with special rates on freight shipped to the Compañia Naviera Mexicana. The arrangement includes all the Pacific ports at which the shipping company's steamers call, and all the railroad stations of the National Lines. The "through bills of lading" will eliminate the necessity of agents in the points of embarkation, destination, or transfer.

GOVERNMENT ROAD-BUILDING PROGRAM. The Department of Communications and Public Works has started work on the construc-

tion of 10,336 kilometers of roads to be completed this year, for which purpose the federal budget appropriates 30,000,000 pesos gold.

GEOLOGICAL MAPS.—The Map Division of the Department of Agriculture has completed a series of maps covering the geological survey of the whole country. About one-fifth of the total area of the Republic is shown to contain oil deposits.

TRADE EXCURSION TO MEXICO.—Under the auspices of the New York Commercial, a business men's trade excursion to Mexico is planned to take place from June 4 to 30. The party will visit Monterrey, an industrial center, Tampico, the great oil port, San Luis Potosí, in the mining district, Guadalajara, the "Pearl of the Occident," Mexico City, Puebla, the third city in the country, and the port of Vera Cruz.

CANADIAN BUSINESS MEN'S VISIT.—As a result of the Canadian commissioners' visit to Mexico some time ago an observation and propaganda trip is being planned by a number of Canadian business men of Toronto and other cities.

ESTABLISHMENT OF FREE WORKSHOPS.—See page 634.

NICARAGUA.

MEXICAN WIRELESS GIFT. The wireless apparatus for the station given by Mexico to Nicaragua arrived aboard the *Carranza* at Corinto on March 25.

PANAMA.

GOVERNMENT ROADS.—The Government roads committee in a recent meeting decided to continue the Las Sábanas road; the Monteoscuro road which runs to San Juan de Pequení and Cerro Barca, and the road to Pacora. The First Avenue detour is being resurfaced, thus completing the only unfinished stretch of good road on the highway from Panama to the Casino, Old Panama, and Tapia.

RICE IMPORT TAX.—The import tax on rice is now to be collected ad valorem on the declared prices as changed or established by the official appraisers.

PARAGUAY.

FOREIGN COMMERCE.—According to the Director General of Statistics, the value of the imports in 1921 amounted to 8,358,922 gold pesos and that of exports to 9,316,721 gold pesos, a total of 17,675,643 gold pesos. During 1920 the imports amounted to 13,118,564 gold pesos and the exports to 14,959,175 gold pesos, a total of 28,077,739 gold pesos.

BRIDGES AND ROADS. The route for the Asunción-San Bernardino road has been definitely fixed via San Lorenzo, Capiatá, Itanguá, and Ypacaraí. The towns through which the road will pass have

been asked to appoint commissions to advance as much as possible the accomplishment of this highly important work.

The bridge and road section of the Banco Agrícola reports that in the first eight months of 1921 the sum of 2,431,899 pesos legal currency was spent in this work. Two more bridges costing 70,000 pesos are under construction, with the financial cooperation of the municipalities in which they are located.

PERU.

CHEAPER SHOES.—United States shoe manufacturing machinery has been installed in the Panóptico prison at a cost of 20,000 Peruvian pounds. Army shoes are being turned out at a cost of 7.50 soles as against a minimum of 16 soles for those imported from the United States, the quality, it is said, being equally good. It is expected that shoes of all kinds will be made.

LIMA–YANGAS ROAD. This road, 90 kilometers in length, has been opened to automobiles.

SALVADOR.

IMPORTANT RAILWAY LINK. Amid much popular enthusiasm the line between Cojutepeque and San Salvador was opened to traffic on March 17. This is a new link of approximately 45 miles in the International Railway of Central America, which in turn forms part of the Pan American Railway, planned eventually to unite New York and Buenos Aires. The first section of this line from La Unión (Cutuco) to San Miguel was finished in 1912; from San Miguel to Zacatecoluca and San Vicente in 1915; from San Vicente to Cojutepeque in 1920; and from Cojutepeque to San Salvador March 15, 1922, thus completing the line across the country, 252 kilometers in length.

Since the completion of this line travelers from San Salvador can reach the capital of Honduras in 22 hours, and the capital of Nicaragua in less than 26 hours, making the trip to the mainland of Honduras (San Lorenzo) from Cutuco (or La Unión) across the Bay of Fonseca in a gasoline launch in five hours and then taking an auto stage to Tegucigalpa, or to the mainland of Nicaragua (Tempisque) in approximately 7 hours, and riding several hours overland to Chinandega, whence daily trains run to Managua.

URUGUAY.

ROADS IN MINAS. The Department of Minas is planning to spend 46,000 pesos on city streets and suburban roads.

AMERICAN CONGRESS OF ECONOMIC EXPANSION AND COMMERCIAL TEACHING. At the January meeting of the permanent commission

in Montevideo it was resolved to take up with other Pan American countries through the Department of State their attendance at the congress to be held in Rio de Janeiro on October 12 of this year. The last congress was held in Montevideo in 1919. Papers on the following subjects were assigned for study and reports: Plans, programs, and regulations of the commercial schools of the continent; customs regulations; an improved international political economy for America; commercial instruction of women; shorthand teaching in commercial schools; and office practice in advanced commercial schools.

REDUCED RATES TO BRAZIL, URUGUAY, AND ARGENTINA: See page 610.

VENEZUELA.

NEW ROAD.—The president of the State of Zulia has authorized the opening of the new road from Altagracia through Mene which joins the Falcón-Zulia highway and extends to the boundaries of the State of Falcón. This road, built by the British Controlled Oilfields Co., will be 15 meters wide and divided into two parts, one for the use of the company and the other for the public.

COFFEE EXPORTS, 1921.—Last year coffee was exported as follows from four Venezuelan ports: La Guaira, 146,485 bags; Puerto Cabello, 265,348 bags; Maracaibo, 633,552 bags; Carupano, 311,423 kilos. (The bags weigh 60 kilos each.) These figures are given by the United States consul at Caracas.

EXPLOITATION OF NATURAL PRODUCTS.—See page 623.

ECONOMIC AND FINANCIAL AFFAIRS

ARGENTINA.

TWENTY-SEVEN MILLION DOLLAR LOAN.—The Argentine Ambassador to the United States signed a contract March 6, with a syndicate of New York bankers for a $27,000,000 loan to the Argentine Government for 5 years at 7 per cent interest. The bonds of this loan, which will be sold at 99 per cent, will run from February 1, 1922, to February 1, 1927, and are free from all tax by the Argentine Government. The loan is to be used for the payment of previous loans to the Argentine Republic, and will considerably reduce the country's floating debt.

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BOLIVIA.

EXPORT TAXES.—Receipts from export taxes for the first six months of 1921 amounted to 1,304,406.41 bolivianos, as follows: Tin, 1,043,051.75; copper, 1,358.97; antimony, 409.36; bismuth, 1,995.33; silver, 91,216.17; rubber, 69.15; hides and skins, 6,040.17; hard woods and feathers, 240.30; wools, 2,787.22; additional mineral tax, 127,545.29, and export statistic tax, 29,693.69 bolivianos. During 1920 minerals and other exports reached a total of 121,252,115 kilos, valued at 156,018,743 bolivianos. (*President's Message.*)

CHILE.

ARGENTINE-CHILEAN STOCK EXCHANGES.—Due to the initiative of the Minister of Argentina in Chile and the cooperation of the Argentine and Chilean sections of the Pan American High Commission, the negotiations which have been under way for establishing an interchange of quotations between the stock exchanges of Santiago and Buenos Aires are approaching a successful conclusion. The president of the Buenos Aires stock exchange has recently visited the Chilean capital to complete the arrangements, which are of great importance in the relations between the two countries.

SANTIAGO LOAN.—The Municipality of Santiago has secured in the United States a loan of $6,000,000 with 2 per cent annual amortization and 8 per cent annual interest. At the present rate of exchange the loan amounts to more than 60,000,000 pesos national currency.

COLOMBIA.

TREASURY BONDS.—Executive Decree No. 169 of 1922 authorizes the Conversion Board to issue and deliver to the Treasury of the Republic the sum of 6,000,000 pesos in Treasury bonds, in accordance with Law No. 6 of 1922. The emission will be made at the rate of 1,000,000 pesos a month.

CUBA.

BUDGET FOR PROVINCE OF HABANA. On March 13 the Provincial Council approved the budget for the fiscal year 1922–23, which amounts to $798,909.45. Among the items are $2,000 for the María Jaén Asylum for Tuberculous Children, $264,323.58 for new public works, and $120,000 for road construction and repairs.

INTERNAL DEBT.—See page 621.

DOMINICAN REPUBLIC.

FOREIGN DEBT. The foreign debt of the Dominican Republic is stated as follows (Feb. 20, 1922):

Year.	Original amount.	Outstanding.	Annual charges, interest, and amortization.	Date of complete amortization.
1908	$20,000,000	$7,534,000	$1,200,000	1927–1929.
1918	4,161,000	1,627,000	289,000	.....
1921	2,500,000	2,242,000	814,000	July 1, 1925

GUATEMALA.

BUDGET CHANGES.—Under Decree No. 784 of February 27, 1922, the budget for the fiscal year ending June 30, 1922, has been changed to read as follows: Government and Justice, 65,439,880 pesos; Foreign Relations, 10,372,763.50 pesos; Treasury, 23,212,017.72 pesos; Public Credit, 12,298,441.50 pesos; War, 64,955,358 pesos; Promotion, 36,632,404.44 pesos; Public Instruction, 45,328,622.40 pesos; Agriculture, 1,831,600 pesos; other expenditures, 1,000,000 pesos; total, 261,071,087.56 pesos. This decree became effective March 1.

HAITI.

INTERNAL TAXES. The Moniteur reports the internal taxes collected from October 1, 1921, to January 31, 1922, as 175,336.70 gourdes and $74,366.38.

HONDURAS.

CUSTOMS AND LIQUOR-TAX REVENUES.—The customs revenues for 1921 were as follows, expressed in silver pesos: January, 386,628; February, 264,832; March, 316,311; April, 338,397; May, 370,394; June, 462,834; July, 552,360; August, 431,262; September, 370,656; October, 350,609; November, 407,395; December, 393,522, making a total of 4,645,201 silver pesos.

The liquor-tax receipts for 1921, in the same unit, were as follows: January, 219,444; February, 181,083; March, 150,246; April, 165,598; May, 165,506; June, 178,205; July, 195,615; August, 161,885; September, 164,507; October, 145,790; November, 159,822; December, 177,665, making a total liquor revenue for the year of 2,065,366 silver pesos.

PERU.

BUDGET.—The budget presented to Congress by the President was provisionally sanctioned by the special session of Congress, with the proviso that no public official or employee may receive in 1922 a salary greater than he received in 1921, and also that the tobacco tax shall be entirely spent for railway construction.

The budget, which was drawn up by the financial adviser and the fiscal agent, provides for an expenditure of Lp. 6,000,000. This is a

cut of approximately Lp. 2,000,000 from the 1921 budget. Congress will take final action at the next regular session.

SALVADOR.

1921 REVENUE.—The Government revenue for 1921 was collected from the following sources: Import duties, 4,398,746.12 colones; export duties, 1,248,46.72 colones; liquor tax, 1,946,081.06 colones; stamped paper and revenue stamps, 456,734.32 colones; direct taxes, 595,993.65 colones; various revenues, 850,389.60 colones; other receipts, 748,932.30 colones; national property, 68,201.32 colones, making a total of 10,313,540.09 colones. The expenditures of 1921 for the administration of the Government were: Presidency of the Republic, 104,978.27 colones; National Assembly, 87,444.09 colones; Department of the Interior, 1,828,540.43 colones; Department of Promotion, 601,438.68 colones; Public Instruction, 895,800.12 colones; Foreign Relations, 100,898.74 colones; Justice, 598,473.44 colones; Charity, 531,144.94 colones; Treasury, 913,306.48 colones; Public Credit, 2,460,101.77 colones; War and Navy, 2,210,915.60 colones; Agriculture, 52,247.52 colones; General Ministry, 141,276.54 colones, making a total expenditure of 10,526,566.62 colones.

URUGUAY.

REAL ESTATE.—La Propiedad Territorial states that the amount of money annually expended in the Republic in the purchase and sale of real estate, exclusive of all other methods of transfer, is 60,000,000 pesos, while mortgages total 35,000,000 pesos, and rents at least 15,000,000 pesos.

LEGISLATION

ARGENTINA.

AIR SERVICE.—The President has issued a decree creating the Aviation Corps, the Fifth Arm of the Military Service. The Government has dissolved the Military Aviation School at Palomar to found Flying Group 1.

BRAZIL.

NATIONAL SUGAR EXCHANGE.—An act of the National Congress, sanctioned by the President on January 7 last, established a national

sugar exchange for the purpose of regulating the price of sugar for exportation, as has been briefly mentioned in the BULLÉTIN. The exchange is administered by a board of expert members under the chairmanship of the Minister of Finance and the vice chairmanship of the Minister of Agriculture. The new department will have its headquarters in Rio de Janeiro and branch offices in Recife, Maceio, Aracajú, Bahia, Campos, Parahyba, São Paulo, and wherever else they may be necessary. The operation of the exchange is based on the purchase of sugar in such quantities as may be required to keep the price of crystallized sugar on a level of 600 reis per kilo (3.9 cents per pound at the present rate of exchange). The sugar purchased will be exported.

FEDERAL AID FOR PUBLIC ROADS.—A decree of the National Congress, sanctioned by the President on January 11, 1922, establishes a system of federal aid to be extended to the States and the Federal District for the construction and maintenance of public roads. This aid is to consist of a subsidy, which may amount to 50 per cent of the total cost of the road, it being understood, however, that such subsidies must be within the limits of the respective appropriation in the annual budget.

FEDERAL CAPITAL.—Dr. Epitacio Pessoa, President of the Republic, has sanctioned a recent law of the National Congress providing for laying the corner stone of the new Federal capital on the central plateau of Goyaz. The ceremony will take place on the 7th of September, 1922, the one hundredth anniversary of independence.

HOUSES FOR PUBLIC EMPLOYEES.—An act of the National Congress sanctioned by the President January 17 last, provides for the calling of tenders for the construction of homes for Government employees, including laborers, clerks, Army and Navy officers, members of the police of the Federal District and officers of the Federal courts.

When the construction is finished the contractor is to be paid in Government bonds, redeemable at par according as the purchaser pays his installments into the special fund established for the purpose. Full payment is due in 20 years, or may be made in less time if the purchaser desires. He meantime holds the property under a mortgage to the amount of the capital invested, bearing interest not to exceed 9 per cent per annum.

CUBA.

INTERNAL DEBT.—By Decree No. 336 of March 1, 1922, the Secretary of the Treasury is authorized to apply 15 per cent of the weekly customs receipts on the amortization of bonds and interest payments of the internal debt, up to an amount equivalent to a year's interest on the foreign debt of $35,000,000.

CUBAN EMPLOYEES.—A recent law requires that on all public works of the State, the provinces, or municipalities, whether carried on under their own auspices or by contractors, at least 75 per cent of the employees shall be Cuban citizens. Infractions of this law are punishable with a fine of $30 to $500.

SCHOOL OF AGRICULTURE FOR WOMEN.—The Secretary of Agriculture has issued a decree establishing the Free School of Agriculture for Women.

DOMINICAN REPUBLIC.

DELINQUENT MINORS.—A recent Executive order provides that until houses of correction are established, minors under 18 years of age who are condemned to imprisonment in a house of correction may be given into the custody of managers or owners of shops and factories, or of families, provided no labor unsuitable to the age of the delinquents is exacted and they are allowed part of the day for education. Applications will be received by the district attorney either directly or through religious or child-welfare societies, and he is charged with the duty of seeing that minors receive proper care.

SALES TAX.—A sales-tax law went into effect March 1, 1922. It provides for a tax paid by means of stamps on all proprietary and patent medicines, toilet soap, perfumes, and alcoholic beverages. The tax on the first and third items is $0.01 on each $0.10, and on the second, $0.01 on each $0.20. On alcoholic beverages the amount varies from $0.01 on $0.10 to $0.15 on $1.

BANKRUPTCY LAW.—The bankruptcy law has been extensively amended by Executive Order No. 718.

PERU.

SILVER ALLOY COINAGE.—Law No. 4471, January 26, 1922, authorized the issue of silver alloy coinage to the amount of 7,045,932 Peruvian pounds in place of the paper currency guaranteed by gold, which is now in circulation. The coins are to have a value of one sol and half a sol. The Government will derive a profit of approximately 175,000 Peruvian pounds, says the West Coast Leader.

URUGUAY.

INTERNATIONAL AMERICAN CHILD WELFARE OFFICE.—Since there is so much interest in the approaching Third Pan American Child Welfare Congress to be held in Rio de Janeiro in August, the text of the following decree is given in full:

In view of the acceptance by the Second Pan American Child Welfare Congress (Segundo Congreso Americano del Niño), assembled in May, 1919, in this capital (Montevideo), of the proposal presented by its president, Dr. Luis Morquio, for the creation of an International American Child Welfare Office, to be the center in America for study, action, and propaganda in relation to all matters concerning the child;

Considering that special interest exists that the aforesaid office, which will have to be constituted by international agreement, should be definitely established, and that consequently the regulations governing it should be proposed for the acceptance of the American Governments to participate in the agreement;

Considering that the meeting of the Third Pan American Child Welfare Congress at Rio de Janeiro in the course of the present year presents an opportunity to carry out the aforementioned plan;

The National Council of Administration decrees:

ART. I. That Dr. Luis Morquio as president, Dr. Julio A. Bauza, Dr. Prudencio de Pena, Dr. Dardo Regules, Dr. Rafael Schiaffino, Dr. Victor Zerbino, and Dr. Roberto Berro be designated to form a commission for the purpose of formulating the statutes of the office above named, with the object of submitting them to the aforementioned Congress at Rio de Janeiro for its approval.

ART. 2. Let this be communicated, etc.

MINISTRY OF PUBLIC INSTRUCTION,
Montevideo, January 24, 1922.

SOCIAL LEGISLATION IN URUGUAY.—Five hundred copies of the official compilation bearing the foregoing title have been placed at the disposition of the legations and consulates of the Republic for distribution.

DAY OF REST.—On January 5, 1922, the National Council of Administration issued a decree establishing regulations for the day-of-rest law of December 10, 1920, as applied to railway employees and the crews of boats of national registry. In some cases 2 days of rest may be taken after 12 days of work, or 4 days of rest after 24 days of work. Provision is also made for giving part of the allotted days as vacation. (See the *Bulletin* for September and October, 1921.)

PROHIBITION IN ARMY.—By a presidential decree of January 18, 1922, the consumption of alcoholic beverages is prohibited in all army units and buildings. This is in line with the prohibition last year of such beverages in the Navy and in canteens.

VENEZUELA.

DEVELOPMENT OF NATURAL PRODUCTS.—The President has issued a decree governing the exploitation of natural products which covers hardwoods for building or dyeing; saps, latex for rubber and gutta-percha taken from trees, shrubs, and vines; fruits, tanning woods and barks; balsams and terebinth, sarsaparilla and seed for essential oils; oils from seed and plants; gums and resins; vegetable wax; textiles and fibers, pulp or cellulose; barks and withes; medicinal plants; orchids and bulbs; and any other like products whether from national forests or unoccupied lands, or from the estates or holdings of individuals. The exploitation of natural products may be carried on only in accordance with the provisions of the Law of Mountains and Waters, and the new decree gives directions for requests for permits to exploit natural products.

INTERNATIONAL TREATIES

ARGENTINA–URUGUAY.

TRIANGULATION OF THE URUGUAY RIVER.—On February 8, 1922, ratifications of the convention between Argentina and Uruguay on the triangulation of the Uruguay River were exchanged in Montevideo. The convention was signed April 11, 1918. It has the following provisions:

ART. I. The Military Geographical Institutes of Uruguay and Argentina will together perform the work of triangulation of the Uruguay River, common boundary of the two countries, from the mouth of the Cuareim to the mouth of the Uruguay in the estuary of the River Plate, so that the operation shall form a chain of triangles with the vertices on each bank of the river.

ART. II. The work mentioned in Article I shall be done in such a way as to serve as part of the sheets of the map on the scale of 1 in 1,000,000 which correspond to that zone.

The remaining articles have to do with the commission to be formed, with the technical details, and with the exchange of ratifications. (*Diario Oficial, Uruguay, February 16, 1922.*)

BOLIVIA.

INTERNATIONAL CONVENTIONS.—Bolivia has signed the additional protocol of the Versailles Treaty. The Hispanic-American Postal Convention signed in Madrid November 13, 1920, has been ratified by Bolivia, as well as the Peace and Friendship Treaty between Bolivia and China signed on December 3, 1919, and the arbitration treaties concluded with Colombia and Venezuela in 1918 and 1919, respectively. The Bolivian Envoy Plenipotentiary in Paris was instructed to sign the protocol relative to the statutes of the Permanent Court of International Justice. (*President's Message, October, 1921.*)

BRAZIL–PARAGUAY.

EXTRADITION TREATY.—On February 24, 1922, a treaty for the extradition of criminals was signed in Asunción by the Minister of Foreign Affairs of Paraguay and the Minister of Brazil. (*Diario, Asunción, February 24, 1922.*)

BRAZIL–URUGUAY.

EXTRADITION TREATY.—By an act of the Brazilian Congress, sanctioned by President Pessoa on February 4 last, approval was given to the protocol signed in Montevideo, December 7, 1921, in addition to the treaty for the extradition of criminals concluded December 27, 1916, between Brazil and Uruguay. (*Diario Official, February 7.*)

COLOMBIA.

BOLIVIAN–COLOMBIAN ARBITRATION TREATY.—On January 16, 1922, the President of Colombia approved the general arbitration treaty between Bolivia and Colombia, signed November 13, 1918, and sanctioned by the Congress of Colombia by Law No. 61, of 1919. (*Diario Official, January 26, 1922.*)

COSTA RICA–UNITED STATES.

EXTRADITION TREATY.—On January 21, 1922, in San José, the plenipotentiaries of Costa Rica and the United States signed a treaty for the extradition of criminals. The President of Costa Rica has submitted the treaty to Congress for approval. The text of the treaty is published in the Gaceta Oficial of January 26, 1922.

VENEZUELA.

EXTRADITION TREATY.—On January 19, 1922, the Venezuelan Minister of Foreign Relations and the American chargé d'affaires *ad interim* in Venezuela signed the extradition treaty whereby both Governments promise to give up to justice individuals accused or convicted of specified crimes in either one of the signatory countries. (*Universal, Caracas, January 20, 1922.*)

PERMANENT COURT OF INTERNATIONAL JUSTICE.—According to the Revista de Derecho for September and October, 1921, the National Congress on June 21, 1921, ratified the League of Nations resolution of December 3, 1920, establishing a Permanent Court of International Justice. On September 7, 1921, the President of Venezuela approved the sanction of Congress.

ITALIAN CLAIMS.—On February 9, 1922, in Caracas the Venezuelan Minister of Foreign Affairs and the Ministry of Italy in Venezuela exchanged ratifications of the convention signed December 21, 1920, by which Venezuela agreed to pay 300,000 bolivares in settlement of the claims of Italian subjects. Payment has already been made.

PUBLIC INSTRUCTION AND EDUCATION

ARGENTINA.

TEACHERS' VACATION COLONY.—Upon the suggestion of the Argentine Ambassador to the United States, Dr. Tomás Le Breton, a teachers' association, called the "Camping Club of Buenos Aires," was formed to open a trial vacation colony. The funds for the enterprise were supplied by the Government, the National Council of Education furnishing 1,000 pesos, the Minister of Instruction railroad fares, and the Minister of War the tents and other necessities for establishing the camp. There were 30 members of the party, which set up its camp at Mar del Plata. Each camper served his turn as cook, guard, or at other services. The schedule was planned more or less on military lines. During the day free time was spent in walks, excursions, visits to near-by points of interest, reading, fishing, and other diversions. The teachers have decided that camping is practicable and that women teachers and families should try such vacations.

BOLIVIA.

SECONDARY SCHOOLS FOR GIRLS.—The Minister of Instruction has issued a decree providing that the studies above the third year in the secondary schools for girls will be approved for primary teachers' certificates if pedagogy and child psychology are taught in said institutions.

CHILE.

RAILWAY UNIVERSITY.—The courses of the Railway University, founded three years ago for all the employees of the State railroads without distinction of rank or trade, have been extremely successful. The curriculum covers five years; the first three are devoted to a general preparatory course, and the last two are given to specialized studies. The teachers are all competent engineers who give their services free of charge.

SCHOOL SAVINGS.—La Información in its January number gives an interesting account of the development of school savings (established by executive decree as a result of the first Savings Conference, held in Santiago in 1915), through the active support of the teachers and the cooperation of private authorities and schools. The movement is aided by a propaganda department, lectures, the publica-

tion of various magazines, and the distribution of circulars, as well as by competitions, prizes, savings stamps, and the annual Savings Festival celebrated in the schools of the Republic. The total school savings to date amount to 600,000 pesos, national currency, a sum which the new small savings stamps, soon to be issued in denominations of 5 and 10 centavos, are expected greatly to increase.

COSTA RICA.

COSTA RICAN SCHOLARSHIP STUDENTS.—The Costa Rican students who were awarded the 10 scholarships given by the Mexican Government arrived in Mexico City on March 28 to take up their studies.

The Institute of Alajuela held an entertainment complimentary to the Mexican Legation in Costa Rica to express gratitude for the generous action of Mexico toward Costa Rica.

CUBA.

EVENING CLASSES FOR WOMEN.—On the first of February evening classes for women were opened in the Emigrant's House in Habana. They include general instruction and lectures on psychology, child hygiene, and domestic science.

SCHOOL OF AGRICULTURE FOR WOMEN.—See page 622.

DOMINICAN REPUBLIC.

ARITHMETIC CLASSES.—Free Sunday classes in arithmetic, open to persons of both sexes, are being given in Santo Domingo by the director of the Santa Ana Academy. These are the first classes offered on Sunday, and mark an advance in popular education.

ECUADOR.

WOMEN AND HIGHER EDUCATION.—Two universities of Ecuador have recently granted the doctor's degree to women, Dr. Matilde Hidalgo being the fourth woman to receive the degree of doctor of medicine, while the other degree was conferred in the department of philosophy and letters. An indication of the feminist evolution quietly proceeding in the Republic is the proportion of women—30 in a total of 300 students—pursuing advanced courses in the University of Guayaquil.

MEXICO.

NEW UNIVERSITY BUILDING.—Half a million gold pesos will be appropriated for the new building of the School of Dentistry of the National University. Architects have already been summoned to submit plans for the building, which is to be of the true colonial type.

SCHOOL FOR HOME MAKING.—A school for instruction in home making, the first of its kind, has been established in Mexico City by the Department of Public Education and named after the well-known Chilean poet, Gabriela Mistral.

PARAGUAY.

PARAGUAYAN INSTITUTE.—The Paraguayan Institute was founded in 1895, by a group of young enthusiasts, for promoting national culture in arts and letters. The literary section contained a library and published a review of science, letters, history, and ethnography, also providing a series of interesting lectures, concerts, and literary and musical evenings. In addition it held classes in gymnastics, fencing, drawing, music, painting, languages, business methods, and other subjects. In 1917 the institute was reorganized and was housed in a fine building erected for its use.

Under the reorganization plan the musical classes were expanded into an Academy of Music, which is taking its place as one of the best in South America. This academy has produced a number of promising graduates, some of whom have gone to Argentina and won distinction in the conservatory of that country. On last Columbus Day a very fine musical program was furnished by the students of music in the Paraguayan Institute.

In July, 1919, the Carnegie Peace Foundation donated to the Paraguayan Institute a library of about 2,000 volumes on literature, history, and jurisprudence by the best authors of the United States. This gift was much appreciated as a manifestation of Pan American cooperation.

VOCATIONAL SCHOOL FOR WOMEN.—A vocational school for women has been opened in Asunción.

PERU.

HONORARY DEGREE.—At a public session of the Council of the University of Cuzco, Dr. L. S. Rowe, Director General of the Pan American Union, was honored by admission to the council as an honorary doctor of the School of Political and Economic Sciences, the diploma and ribbon being conferred in Dr. Rowe's absence on his representative, Dr. Romualdo Aguilar.

EVENING SCHOOL.—The Associated Electrical Companies of Lima have opened an evening school under the direction of their engineers and technicians for the benefit of their workmen and employees. Subjects related to electricity and mechanics will be taught.

SALVADOR.

PUBLIC INSTRUCTION.—From Presidential messages delivered on two occasions, the following facts on education are taken: During

1921, 808 official primary schools were functioning. Of this number there were 513 city schools, 243 for boys, 252 for girls, and 18 for both sexes; 207 rural schools, of which 24 were for boys, 18 for girls, and 165 for both sexes; and 88 night schools for adults, of which 58 were for men and 30 for women.

The registration and average attendance at the primary schools for the year were as follows:

	Registration.	Average attendance.
Boys' day schools	20,984	13,284
Girls' day schools	19,197	13,134
Men's night schools	2,699	1,313
Women's night schools	1,572	785
Total	44,452	28,516

Primary instruction was also given in municipal private schools and in asylums and hospitals. The total registration in these centers of instruction was 7,444, with an average attendance of 5,954. The secondary schools gave satisfactory results during the school year of 1921. There were 568 liberal arts students. Of these 330 were in the National Institute, 40 graduating. Forty-one students took the course in the National School of Finance and Commerce, of whom 8 were graduated as bookkeepers. The Normal Institute for Young Men has been installed in a large concrete building erected for this purpose; 20 students with the title of primary school teacher were graduated. The Normal School for Young Women graduated 13 teachers.

Physical culture has received much attention. The commission in charge has engaged a French instructor to direct the physical training of the school children and the Army.

On September 7, 1920, the General Sanitation Bureau was given charge of the technical side of the school hygiene service, the administrative and instructive aspects being under the Bureau of Primary Instruction. The joint decree of the departments of Government and Public Instruction issued on December 22, 1921, gave the regulations defining the functions of the School Medical Section, its field of operation being extended to include the health of both pupils and teachers.

SCHOOL SAVING STAMPS.—At the suggestion of the Vice President of the Republic the Post Office Department will issue school saving stamps to encourage children to save their money. The Vice President has offered a prize of $100 for the best stamp designed by a Salvadorian artist.

SCHOOL LUNCHROOMS.—The municipality of San Salvador has appropriated 200 colones monthly for the school lunch rooms.

SCHOOL HYGIENE.—The Directorate of Sanitation has issued an order to school principals to install filters for drinking water in the school buildings. Each pupil is required to have an individual drinking glass.

The inspection section of the Education Department has urged the establishment of medical and dental services for the school children of San Salvador, and the present city government is preparing to incorporate service of this kind in the city schools.

URUGUAY.

SCHOOL AND COMMUNITY.—The Anales de Instrucción Primaria report that, as a result of the vacation classes for teachers a year ago, community work of various kinds has been organized in connection with many rural schools. Numerous parents' associations have been started, usually taking under their charge the duty of providing school clothes and a school lunch for poor children. One teacher arranged that the contribution to the school lunch should not be in money but in milk or other suitable supplies, so that all the children in the school were served with an identical lunch. The same teacher's sewing classes made several layettes and outfits for small children, adopting four to whom special care is given for their general welfare. School libraries, lectures, and evening classes for adults are other activities in which the teachers of Uruguay have been the guiding spirits.

SCHOOL FOR ADULTS.—At the petition of the Society for the Promotion of Agriculture of Montes, in the Department of Canelones, the National Council of Primary and Normal Instruction has granted the use of a school building and supplies for a winter course for adult farm laborers from May to September. The society makes itself responsible for 40 pesos a month.

TEACHERS' VACATION COURSES.—The vacation courses given in Montevideo from the first part of January to the latter part of February were attended this year by 742 teachers.

VENEZUELA.

PUBLIC LIBRARY.—An American and his wife have founded in Valencia, capital of the State of Carabobo, a library which is open to the public. Pictures, maps, and other objects of interest are also on exhibition.

SCHOOL IN ZULIA.—On March 1 the Employees' Assembly decided upon the formation of a school in Zulia, where 500 pupils will be given instruction and taught a trade. The school will be founded with funds given by the State employees, who will contribute 2 per cent of their salaries.

SOCIAL PROGRESS

ARGENTINA.

CARE OF BACKWARD CHILDREN.—The Republic of Argentina is developing an extensive system for the care of backward children and youthful delinquents. The Regional Colony Asylum for 800 backward children, a country open-door institution covering 250 hectares, has been established in Torres; the Regional Asylum for Defectives in Córdoba; and the reformatory for Homeless Children in Olivera, Province of Buenos Aires. In Buenos Aires there is a temporary asylum for abandoned children where they are collected and classified as to mental deficiency or competency and sent to the proper institution to be cared for with others of the same kind. The deficient children are placed in three classes, according to the degree of feeble-mindedness, for the purposes of instruction and treatment. Children living at home who are slightly defective are given special attention in the schools, both they and the children in institutions being given primary instruction as well as training in some manual trade to provide them with a means of livelihood.

BOLIVIA.

SEWERS IN LA PAZ.—The Ulen Contracting Co., of New York, completed in January of this year the sewers in La Paz for which it had a contract with the Bolivian Government, as the BULLETIN has already stated. From Ingeniería Internacional are taken the following data concerning these sewers:

In some sections the grade in the pipes reaches 20 per cent; the diameters used are 10, 15, 20, 30, or 45 centimeters. The main pipe has sections 60 and 75 centimeters in diameter, and is of concrete; the first section has a grade of 2 per cent and the latter of 1 per cent. The main pipe is arranged for the passage of 1,236 liters per second, the calculations being based on a future population of 360,000 inhabitants and a rate of somewhat more than 300 liters per capita. The total pipe length is 64,118 meters, including 5,735 meters of the length of the concrete main pipe.

The cost of the work, according to the contract, was $1,042,969, payment of which was made by a bond issue at 90, with 6 per cent interest on the face value. The bonds are to be amortized in 16 years, with biyearly payments of $115,000.

At a total cost of $955,803, the same corporation has supplied the city of Cochabamba with a sewer system containing 52,000 meters of pipes of varying dimensions, 67 water tanks, and 288 manholes.

BRAZIL.

THIRD PAN AMERICAN CHILD WELFARE CONGRESS.—Among the national representatives designated by the organizing committee of the congress (which meets, as already mentioned in the BULLETIN, in the latter part of August), are the following: Argentina, Dr. Araoz Alfaro; Uruguay, Dr. Luis Morquio; Chile, Dr. Ismael Valdés Valdés; Paraguay, Dr. R. Odriozola; Venezuela, Dr. Diego Carbonell; Ecuador, Dr. Esquieta Peres; and Peru, Dr. Paz Soldán.

BUREAU OF CHILD WELFARE.—According to information received by the United States Children's Bureau, a bureau of child hygiene has recently been created in the State department of health, under the direction of Dr. Fernandez Figueira, president of the Brazilian Pediatric Society. The Bureau is planning to establish child health centers.

HOUSES FOR PUBLIC EMPLOYEES.—See page 621.

CHILE.

PROGRESS IN FEMINISM.—A new political body has been formed under the name of the Progressive Feminist Party with the purpose of gaining all the rights claimed by women. The platform is as follows: (1) The right to the municipal and parliamentary vote and to eligibility for office. (2) The publishing of a list of women candidates of the party for public offices. (3) The founding of a ministry of public welfare and education, headed by a woman executive, to protect women and children and to improve living conditions.

The founders of the party are carrying on a quiet campaign throughout the country. No distinction is to be made between the social positions of party adherents, the cooperation of all branches of feminine activity being sought to further the ends of the party. The press is investigating public opinion regarding the new movement. Congress has already received favorably a bill to yield civil and legal rights to women. The greatest pressure has been brought to bear to obtain the concession of legal rights to women to dispose of certain property, especially the product of their own work, and the transference to the mother, in the father's absence, of the power to administer the property of the child and the income therefrom until the minor's majority. The concession of these rights, it is considered, will elevate the authority of the mother and bring more general consideration for women, as well as benefits to family life and social welfare.

GIRLS' CAMP.—The Young Women's Christian Association of Santiago opened a vacation camp for girls at Angol. It was situated in a pine grove amid beautiful and healthful surroundings.

WORKING CLASS CHILDREN.—Among the numerous welfare organizations which have been started in Chile during recent years may be mentioned the Arturo Prat Society, all of whose members are laborers. It is devoted to the protection of children, and its work consists of the following: Complaint to the authorities of mistreatment of children by parents or guardians; cooperation in furthering compliance with the child-welfare law; action to obtain, in accordance with the law recently put in force, day nurseries in all factories employing more than 50 women over 18 years of age; promotion among children of habits of economy, courtesy, and love of reading; and prevention of the employment of children by parents, guardians, or employers in labor beyond their physical strength.

COLOMBIA.

FIRST PUBLIC HEALTH STATION.—The first public health station of the Colombian Red Cross has recently been opened on the Avenida de la República, Bogotá. At this station women are instructed in the proper care of their children, who are weighed so that their mothers will know what progress is being made. Patients are vaccinated against smallpox, and many other services of great benefit to the public in general are rendered gratuitously. The Red Cross is also conducting an antialcohol campaign.

HOOKWORM.—In order to stop the spread of hookworm, the Minister of Agriculture secured in 1919 the cooperation of the Rockefeller Institute. The treatment for the disease is under the care of an Institute official and Colombian assistants, while the Government is in charge of the sanitation of the soil. The Revista de Higiene of July 18, 1921, shows that the campaign was at that time under way in the Departments of Antioquia, Norte de Santander, Cundinamarca, and Boyacá. Those conducting the campaign gave from July, 1920, to July, 1921, 38,068 lectures to audiences aggregating 258,298 persons, for the purpose of instructing the people in the prophylaxis of the disease. They also distributed 136,242 pamphlets, inspected 73,300 houses, caused 37,210 toilets to be built, and gave 37,060 treatments. Dr. V. A. Heisser, of the Rockefeller Foundation, states that in none of the countries where campaigns have been conducted against hookworm has so much work been done in the same length of time.

CUBA.

BUDGET FOR PROVINCE OF HABANA.—See page 618.

DOMINICAN REPUBLIC.

LEPROSARIUM.—The leprosarium at Nigua has 17 patients, who are receiving the chaulmoogra oil treatment. Each patient has a

room to himself, one of two in a small reinforced concrete house. Everything possible is done for the comfort and entertainment of the inmates; moving pictures, a pianola, and a phonograph are provided. Six Sisters of Mercy reside at the leprosarium.

SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS.—A branch of this society has been recently organized in Santo Domingo and is preparing to enter on a campaign of active work.

DELINQUENT MINORS.—See page 622.

ECUADOR.

TREATMENT FOR LEPERS.—The Minister of Foreign Relations has cabled to Washington for 8 liters of chaulmoogra oil for the treatment of the lepers at Pifo.

BOY SCOUT NATIONAL ASSEMBLY.—The first national assembly of the Boy Scouts of Ecuador was held in Quito during the Centenary celebration in May and was attended by delegates from all parts of the Republic. They paraded and gave an exhibition of scout training. The Ecuadorean boy scout who visited the United States is to give a series of talks on the Boy Scouts of America in school centers.

A delegation of Girl Guides of Guayaquil also went to Quito to attend the Centenary celebration.

MEXICO.

PUBLIC HEALTH SCHOOL.—The Department of Public Health opened a public health school during the early part of February of this year.

ESTABLISHMENT OF FREE WORKSHOPS.—In the establishment of free workshops the Department of Commerce, Industry, and Labor is to carry out an extremely important measure for the economic development of small industries. These shops, which will be provided with all necessary machinery, will be under the supervision of a master mechanic, having also an art director, an administrator, and a sales agent. To enter the shops persons are required to be able to read, write, and understand elementary arithmetic. They are furnished with raw materials and tools, and for the first months are also paid a wage of 2 pesos daily. From the sales price of the finished articles made by the students there are to be deducted the price of raw material, 5 per cent for the running expenses of the shop, and 5 per cent for the workmen's reserve fund; the remainder is to be turned over to the workman as his compensation.

After a four months' course any workman who desires to establish his own shop may be provided with raw material and tools, purchased from the reserve fund of the free machine shop where he has learned his trade. It is proposed also to establish a cooperative society composed of the workmen trained in such shops.

PANAMA.

TUBERCULOSIS STUDIES.—Dr. Luis De Roux has been selected by the Panaman Government to visit the United States to make investigations, scientific studies, and observations as to the treatment of tuberculosis preparatory to the establishment of the tuberculosis ward of Santo Tomás Hospital and to the initiation of the campaign against this disease.

COLON FREE CLINIC.—During the first six months that the Colon Free Clinic of the Cristobal Women's Club, whose good work has already been mentioned in the *Bulletin*, was in operation it handled over 10,000 cases and reduced infant mortality and the tuberculosis death rate. The infant death rate in Colon in 1919 was 155 per thousand, in 1920, 145 per thousand, and in 1921, 143 per thousand, which is the lowest infant mortality rate ever recorded in Panama, considered especially gratifying in view of the fact that over 80 per cent of the city's population is colored. The reduction last year is chiefly attributed to the clinic's baby welfare work. The tuberculosis death rate, which was 4.13 in 1919, was 2.02 in 1921. The complete report from June 5 to December 31, 1921, is as follows:

Surgical cases treated	3,529
Medical cases treated	3,227
Prenatal cases treated	307
Baby cases treated	1,237
Smallpox vaccinations	2,674
Free meals given patients	5,000
Specimens sent to laboratory	326

PARAGUAY.

CHILDREN'S CLINIC.—In 1921 the children's clinic in connection with the milk station in Asunción was attended by 2,139 infants and 2,486 children between the ages of 2 and 12 years.

HYGIENE AND SANITATION.—The report of the National Department of Hygiene for the year 1921 contains much interesting information. Among the advances was the establishment of a dental clinic by the Odontological Society of Paraguay. The eye, nose, and throat clinic had 2,841 visits. The commissions of the sanitary zones accomplished a great deal of useful work, including the removal of prejudice against sanitary measures in the minds of the people and the inculcation of a knowledge of the danger of inexpert care; 8,060 treatments were given for malaria, 1,484 for general ailments, 1,177 for grippe, and 92,986 for hookworm and similar diseases, while 19,687 vaccinations were performed.

Arrangements have been made with the Rockefeller Foundation to enter upon a five-year sanitary campaign with a monthly expenditure

of 5,000 gold pesos, part of which the Foundation will pay until the fifth year.

VACCINATION AGAINST TYPHOID.—The Army director of sanitation has had many recruits vaccinated against typhoid and paratyphoid by a polyvalent vaccine prepared locally. The results have been excellent.

PERU.

SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS.—The Peruvian branch of this society, founded in September, 1919, was incorporated early this year.

CHILD LABOR.—The inspector of the labor of women and children, hoping to prevent truancy, has requested the cooperation of the police in enforcing the law which forbids children under 14 years to engage in street trading of any nature, allowing it to those between 14 and 18 who have obtained the proper authorization.

HOUSES FOR WORKMEN.—The Dominican fathers at Chucuito, a suburb of Callao, are planning as relief for housing congestion in that port to erect houses for laborers on some of their vacant land. Sixty portable houses, such as those from Seattle, which were recently exhibited in Lima, will probably be put up.

VACCINATION.—Vaccination against smallpox is required of pupils entering the Callao schools.

SOCIAL HYGIENE.—The second lecture on social hygiene, under the auspices of the Popular University, was given in a moving picture house of Vitarte, a manufacturing suburb of Lima. It was illustrated by a film on syphilis. The third lecture in the series was held in the Students House in Lima.

ANTICANCER CAMPAIGN.—Dr. José Mostajo, president of the permanent commission for cancer control, has been appointed by the Government to study anticancer leagues in the United States and Europe.

SALVADOR.

HOOKWORM OFFICE.—So many children appear at consultation hours at the hookworm campaign office that it has been difficult to attend to them all.

STATISTICS OF FREE CLINICS.—The Public Charity Society of San Salvador sent 105 patients to the hospital during 1921; and gave consultations to 9,950 adult patients, and to 4,489 sick children. The society also sent doctors to the homes of 360 sick persons upon their request. The Emergency Night Clinic, Botón Azul, treated 753 persons, the Night Prophylactic Clinic of Santa Lucía ward treated 2,850 men, and that of Concepción ward 761 patients. All patients treated in all the clinics of the city numbered 18,163. The

society also maintains clinics in the Departments of Sonsonate, San Miguel, and Santa Ana, in which 1,315 patients were treated.

The Gota de Leche (milk station for babies) from its opening September 15, up to December had assisted 423 sick children, only 2 of whom died; issued 277 prescriptions; and furnished 7,453 bottles of milk.

UNITED STATES.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.—An International Congress of Ophthalmology was held in Washington from April 25 to 28 last. Of more than 600 delegates registered, approximately 60, among them some of the world's most famous oculists, came from foreign countries, including a notable representation from Latin America. On the program, which was issued in English, Spanish, and French, there were six important papers by delegates from Cuba, Chile, Mexico, and Peru. Other papers were given by French, English, Swedish, Spanish, Belgian, Jugo-Slav, Canadian, and American ophthalmologists. This congress offers another inspiring example of solidarity in the world of science.

PAN AMERICAN CONFERENCE OF WOMEN.—On April 20, in accordance with the announcement previously made in the BULLETIN, the Pan American Conference of Women summoned by the National League of Women Voters met in Baltimore. Delegates from twenty-one American countries, including some from Porto Rico and the Philippines, came to this international gathering, where for three days subjects relating to the welfare of women and children in all spheres of activity were the topics of discussion.

As the BULLETIN intends to give in an early number a more detailed account of the transactions of this highly significant meeting, the present note will be confined to the list of the Latin American delegates and mention of a resolution of far-reaching importance.

The Latin American members of the Conference, who ably represented their respective countries, were as follows: Argentina, Sra. de Le Bretón; Bolivia, Sra. Arcadia Calderón de Zalles; Brazil, Dona Bertha Lutz, Dona Beatriz de Queiroz, Miss Annie d'Armand Marchant; Chile, Sra. de Mathieu, Srta. Graciela Mandujano, Srta. Margarita Mieres, Sra. Sofía de Ferrari Rojas, Srta. Luisa Zanelle López, Srta. Margarita López de Collio; Colombia, Sra. María Suárez de Coronado, Srta. Hortensia Coronado, Srta. María Ordóñez; Costa Rica, Sra. Sara Casal de Quirós; Cuba, Sra. Emma López Sena de Garrido, Sra. Elena de la Pena, Srta. L. Z. del Portillo; Dominican Republic, Sra. Ofelia P. de Joubert; Ecuador, Sra. Matilde de Carbo, Srta. Beatriz Carbo, Srta. Hortensia Balarezo, Srta. Pastoriza Flores, Srta. María Flores; Guatemala, Sra. de Sánchez Latour; Haiti, Mme. Charles Dubé; Honduras, Srta. Mercedes Lainez; Mexico, Srta. Elena

Torres, Sra. Aurora Herrera, Sra. Luisa Garza, Srta. Eulalia Guzmán, Srta. María Rentería de Meza, Sra. Julia Nana de Ruisánchez, Sra. M. C. Conde de Ávila, Srta. Luz Vera; Nicaragua, Srta. María Clotilde Vega, Srta. Juanita Molina; Panama, Sra. Ester Niera de Calvo; Paraguay, Srta. María Felicidad Gonzales, Srta. Ruby Gutiérrez; Peru, Srta. Margarita Conroy, Srta. Zerla Antay, Sra. Carmen de Pinillos, Srta. Laura Memeses del Caprio; Uruguay, Sra. Olga Capurro de Varela, Sra. Celia Paladino de Vitale, Sr. Carlos E. Monteverde; and Venezuela, Sra. Mercedes de Guevara. In addition to the foregoing Latin American members of the conference, there were 27 delegates from Canada and 50 from the United States, besides eight from Porto Rico and one from the Philippines.

The most important resolution passed by the conference was that creating a provisional association for the advancement of women in South and Central America. This new organization aims to bring about the education of all women; establish higher educational standards in women's schools; establish the right of married women to control their own property and to collect and control their own wages; to organize public speaking among women; to see that women have an opportunity for the free use of their talents in any and all lines of endeavor; to educate public sentiment by way of preparation for the vote; and to promote understanding and concord between all the nations in the Americas with a view to assuring permanent peace on this continent.

Mrs. Carrie Chapman Catt, president of the International Suffrage Association, was elected honorary president, and Mrs. Maud Wood Park, president of the National League of Women Voters, provisional president. The vice presidents are Srta. Elena Torres, of Mexico, Sra. Ester Niera de Calvo, of Panama, and Dona Bertha Lutz, of Brazil, while the treasurer is Sra. María Suárez de Coronado, of Colombia, now residing in Washington. As Mrs. Park is unable to serve, the position will be provided for later.

URUGUAY.

Garden district.—A five-sided plot of irregular shape near the Parque Rodó in Montevideo has been laid out in winding roads and 29 lots, which will soon be sold at auction by the municipality with the proviso that only three-fifths of the plot may be built upon, the rest to be planted to trees or gardens.

Hospital for children.—The milk station of Minas has received an appropriation of 4,000 pesos for a children's hospital. It was founded and is directed by Dr. Tula Rovira de Ricci.

Social hygiene.—Dr. Paulina Luisi has been honored by an invitation to represent in Uruguay the Director General of the Inter-

national Congress of Social Hygiene and of Prophylactic, Sanitary and Moral Education which is to be held in Paris next December. Dr. Luisi is asked to present a report on sex education in the schools. She with Dr. Juan Carlos Brito del Pino will represent the Republic at the conference.

VACCINATION.—The Health Department of Montevideo has distributed broadcast a leaflet recommending vaccination against typhoid fever, and has opened a free station for vaccination against smallpox, which is obligatory for minors.

INTERNAL SECRETIONS.—Dr. Juan C. Mussio Fournier, an Uruguayan physician now in Paris, has been honored by being asked to edit the volume on Internal Secretions in Prof. Toulouse's Treatise on Medicine. Dr. Mussio Fournier has made original clinical investigations in this particular branch of physiology.

GARBAGE INCINERATOR.—A Milwaukee engineer has been in Montevideo studying the construction of the municipal garbage incinerator, which he considered admirably adapted to its purpose, it being especially noteworthy that the incineration produces no disagreeable odor and requires little labor. The plant was designed by Juan P. Fabini, an engineer of Montevideo.

Y. M. C. A. CAMP.—The sixth university camp of the South American Federation of Christian Associations was held in Piriapolis in February, with an attendance of Argentine, Brazilian, Chilean, and Uruguayan university men. Fifteen large tents were grouped on a hillside around a central building where the meetings were held. The daily program began with a gymnasium class and closed with a camp fire.

AMERICAN HYGIENE CONFERENCE.—This South American conference will be held in Montevideo early in 1923. Among the subjects for discussion are the following: Typhoid fever, paratyphoid, water-borne diseases, diphtheria, leprosy, beri-beri, exanthematous typhus, bubonic plague, yellow fever, malaria, grippe, campaign against alcoholism, tuberculosis, venereal diseases, and professional diseases.

SOCIAL LEGISLATION IN URUGUAY.—See page 623.

DAY OF REST.—See page 623.

PROHIBITION IN ARMY.—See page 623.

INTERNATIONAL AMERICAN CHILD-WELFARE OFFICE.—See page 622.

VENEZUELA.

OFFER TO THE RED CROSS.—A group of Caracas pharmacists has offered to put up free of charge prescriptions needed by the patients of the Red Cross Dispensary.

GENERAL NOTES

ARGENTINA.

LA PLATA ARTS MUSEUM.—A commission has been appointed to establish a Museum of Fine Arts in the city of La Plata.

WAGNER SOCIETY.—The Wagner Society, of Buenos Aires, which now has 1,643 members, has published a report of the 43 concerts held during the year, and its plans for future programs. It advocates the building of a large concert hall with a seating capacity of 4,000 persons, for organ recitals and other concerts.

BRAZIL.

DIPLOMATIC RECIPROCITY.—The Brazilian State Department has officially announced the promotion of its legation in Mexico to the rank of embassy, in order to reciprocate the same step taken by Mexico with regard to her diplomatic representation in Rio de Janeiro.

CHILE.

CHILEAN DELEGATES.—The Chilean delegates to the Chilean-Peruvian conference, which opened in the Pan American Building May 15, are Señor Don Luis Izquierdo, Minister of Chile in Argentina, and Señor Don Carlos Aldunate Solar, ex-president of the Senate and professor of civil law. The counselor of the delegation is Señor Don Alejandro Alvarez, adviser of the Ministry of Foreign Affairs.

UNITED STATES TOURISTS.—During the early months of this year Chile was visited by a large number of tourists from the United States, chiefly in parties organized by the American Express Co. The press expressed great pleasure at their coming and urged the authorities and the public to extend every courtesy to the travelers.

AMERICAN EMBASSY.—The United States Government has purchased a residence opposite the Parque Forestal in Santiago, which will be used for its Embassy.

COLOMBIA.

BOTANICAL EXPEDITION.—A botanical expedition under the auspices of Harvard University, the New York Botanical Garden, and the Smithsonian Institution sailed in April to make collections on

the central and occidental cordilleras of Colombia. This expedition is one of a series under the same auspices toward a complete study of the flora of northern South America. It is directed by Dr. Francis W. Pennell.

CUBA.

SIXTH LATIN AMERICAN MEDICAL CONGRESS.—According to the plans made in the Fifth Latin American Medical Congress held in Lima in 1913, the Sixth Congress is to be held in Habana, November 19–26, 1922. The President of the Republic has asked Congress for an appropriation of $35,000 for expenses related to the congress. The Department of State has forwarded invitations to the various Latin American countries and to scientific institutions in Cuba. The BULLETIN is indebted to the secretary, Dr. Francisco María Fernández, for news of this important scientific meeting.

FRENCH MONUMENT IN PANAMA.—The Government has contributed $500 as Cuba's quota for the monument which is to be erected in Panama to the French who lost their lives in the attempt to build the canal under De Lesseps.

ECUADOR.

NEW LEGATION.—With the presentation in March of credentials by Señor Don Albino Pugnalia, accredited to Quito as Minister of Argentina, that country established a legation in Ecuador.

GEOGRAPHIC SOCIETY.—The Geographic Society of Quito was recently founded at a meeting held in the University, with Señor don Cristobal de Gangotena Jijón as president.

HAITI.

HAITIAN POETRY.—Under the auspices of L'Essai, a Parisian newspaper, M. Louis Morpeau early this year delivered a lecture on Haitian poetry in the French capital.

MEXICO.

GIFT STATUE TO BRAZIL.—As a gift on the Centenary of Brazil's independence Mexico will present to that country a statue of the Aztec hero, Cuauhtemoc, which will be placed in one of the principal plazas of Rio de Janeiro.

VISITING AMERICAN SURGEONS.—A number of noted American surgeons, headed by Dr. William Mayo, have lately been visiting hospitals, clinics, and other medical institutions throughout a large portion of the country. They have met everywhere with a warm welcome on the part of their southern colleagues and every courtesy has been extended to them by public officials, President Obregón taking a special interest in their mission. Dr. Mayo, in representation of the American College of Surgeons, invited the Mexican medical profession to send delegates to the Medical Convention which will be held in the United States in October.

PANAMA.

TRIBUTE TO GORGAS.—At the memorial services for Brigadier General Gorgas held in Birmingham, Alabama, March 3, the diplomatic representative of Panama in the United States, the Hon. J. E. Lefevre, paid tribute to the great sanitarian in an eloquent address. He said that Panama was engaged in a constant effort to render homage to the man who had made the canal possible by freeing the Republic from yellow fever, and that, like the Cid, after death he still led his forces to victory. The British ambassador to the United States also made an address, praising the achievements of General Gorgas.

PERU.

PERUVIAN DELEGATES.—The Peruvian delegates to the Chilean-Peruvian conference are Dr. Melitón F. Porras, ex-minister of foreign affairs, and Dr. Hernán Velarde, Minister of Perú in Argentina. Dr. Solón Polo, technical adviser of the Department of Foreign Affairs, is counsellor of the delegation.

HALL OF FAME.—The portrait of Señor Alberto Ulloa, a distinguished journalist, highly respected for his civic virtues, has been added to the National Gallery of portraits of notable Peruvians in the Lima library, making 42 men thus honored, among whom are Prescott and Markham. A special act of Congress is necessary for this distinction.

URUGUAY.

SIR ERNEST SHACKLETON.—The death, on January 5, 1922, of Sir Ernest Shackleton, the famous British explorer, caused a profound impression all over the world and was felt with especial keenness in Uruguay. It was there that his body was brought before the news of his passing had reached any country. At the time of the funeral service the Uruguayan nation rendered the military honors of a minister to Sir Ernest Shackleton, and the official representatives and members of the British colony, the mourners in the funeral cortège, were joined by throngs of sympathetic Uruguayans. The generosity and many courtesies of the Uruguayan Government were deeply appreciated, although it was thought best to decline the offer of a warship to bear the explorer's body to its last resting place in South Georgia. The President in his message to Congress, and the Minister of Foreign Relations at the funeral service, highly eulogized Sir Ernest's character and work.

IMMIGRATION.—The Immigrant Lodging Bureau has given out the following figures for immigration: 1920, 3,148; 1921, 2,413. Spaniards came in the largest number: 1,422 in 1920 and 1,055 in 1921.

SUBJECT MATTER OF CONSULAR REPORTS

REPORTS RECEIVED TO MARCH 20, 1922.

Subject.	Date.	Author.
ARGENTINA.		
Educational courses in Argentine schools	1922. Jan. 11	W. Henry Robertson, consul general at Buenos Aires.
Argentine foreign trade, first 9 months of 1920	Jan. 17	Do.
Bids for rails and accessories for State railways	...do....	Do.
Report upon the operation of the new rent law	Jan. 18	Do.
Aerial Transport services between Buenos aires and Montevideo.	Jan. 19	Do.
Opening of Aerial School at San Isidro	Jan. 20	Do.
Project of Argentine Labor Code	Feb. 2	Do.
Annual report on commerce and resources of northern Argentina for calendar year 1921.	Feb. 3	Wilbert L. Bonney, consu at Rosario.
Argentine railway tariff increases	Feb. 4	W. Henry Robertson.
Argentine meat in the United Kingdom	...do....	Do.
Public control of privately owned forest lands	...do....	Do.
Presidential message regarding extension of time for payment of Agrarian loan.	...do....	Do.
Condition of Buenos Aires banks at the end of Dec. 31, 1921	...do....	Do.
Decrease in sales of agricultural machinery	Feb. 8	Do.
Cereal prices, week ending Feb. 2, 1922	...do....	Do.
Proposed tax upon steamship passenger fares	Feb. 13	Do.
Executive message to Congress regarding rural rentals	Feb. 14	Do.
Constitutionality of rental law covering residential and business premises.	...do....	Do.
BRAZIL.		
Coal imports during first 9 months of 1921	Jan. 6	C. R. Cameron, consul at Pernambuco.
Alcohol as automobile fuel in Pernambuco	Jan. 11	Do.
Report on shipping conditions at port of Pernambuco	Jan. 14	Do.
Bahia tobacco industry	Jan. 17	Thos. H. Bevan, consul at Bahia.
Report of the municipality and port of Santos, with especial reference to temperature and rainfall.	Jan. 20	Herndon W. Goforth, vice consul at Santos.
Federal subsidy for roads built and maintained in Brazil	Jan. 25	C. R. Cameron.
Improvements in the port of Natal, State of Rio Grande do Norte.	Jan. 28	Do.
Coastwise navigation at Santos	Jan. 31	Do.
Proposed dredging of port of Recife	Feb. 7	Do.
Building construction activity	Feb. 8	E. M. Lawton, consul at Sao Paulo.
Shipping conditions at Pernambuco	Feb. 11	C. R. Cameron.
Concession for hotel in Maceio, Alagoas	Feb. 17	Do.
Concession for vegetable oil industry in Parahyba do Norte	Feb. 18	Do.
Cotton culture in Brazil	Feb. 21	Alphonsa Gaulin, consul general at Rio de Janeiro.
CHILE.		
Internal revenue for 1920—recent discoveries in the mining industry.	Jan. 25	C. F. Deichman, consul general at Valparaiso.
Highway transportation	Feb. 2	B. C. Matthews, vice consul at Antofagasta.
General conditions—port construction—trade notes	Feb. 6	S. Reid Thompson, vice consul at Valparaiso.
Act to regulate Chilean coastwise shipping	Feb. 13	Do.
COLOMBIA.		
Market for manufactures of rubber	Feb. 7	Leroy R. Sawyer, consul at Santa Marta.
Colombian Congress to issue treasury notes	Feb. 10	Edmund B. Montgomery vice consul at Barranquilla
Coffee industry in Barranquilla district	Feb. 20	Do.
COSTA RICA.		
Public control of forest lands	Feb. 15	Henry S. Waterman, consul at San Jose.
Market for canned goods (American)	Feb. 23	Do.
Information regarding lumber	Mar. 5	Do.
CUBA.		
The use of motor vehicles	Feb. 17	Frank Bohr, consul at Cienfuegos.
Coal importation at Habana during 1920–21	Feb. 20	John R. Putnam, consul at Habana.
Exports for the year 1921	Feb. 21	Thomas McEnelly, vice consul at Matanzas.
Imports through the port of Matanzas for 1921	...do....	Do.
New telephone system in Isle of Pines	Feb. 22	Charles Forman, consul at Nueva Gerona.
Imports from Germany, 1921	Mar. 7	Harold D. Clum, consul at Santiago de Cuba.

Report received to March 20, 1922.—Continued.

Subject.	Date.	Author.
CUBA—continued.		
Cattle and slaughtering in Cuba	...do....	John R. Putnam.
Motion pictures	...do....	Do.
Petroleum and petroleum products	...do....	Charles Forman.
Coal, lignite, and coke	...do....	Do.
Sugar shipments in foreign bottoms	Mar. 11	Thomas McEnelly.
Imports through the port of Matanzas, 1919, 1920, 1921	...do....	Do.
DOMINICAN REPUBLIC.		
Decline in value of exports from Santo Domingo district	Jan. 30	Geo. A. Makinson, vice consul at Santo Domingo City.
Market in the Dominican Republic for manufactures of rubber	Mar. 7	Do.
Economic notes	...do....	W. A. Bickers, consul at Puerto Plata.
GUATEMALA.		
Regulations governing the importation of nursery plants into Guatemala.	Feb. 16	Arthur C. Frost, consul at Guatemala City.
HAITI.	1921	
General summary of the mining industry	Dec. 30	Avra M. Warren, consul at Cape Haitien.
HONDURAS.	1922	
New electric lighting systems for certain municipalities in Honduras.	Jan. 11	Albert H. Gerberich, vice consul at Puerto Cortes.
Registration and use of automotive vehicles	Jan. 27	Do.
Public control of privately owned forest lands	Feb. 4	G. K. Donald, consul at Tegucigalpa.
January report on commerce and industries	Feb. 20	Do.
Credits	Feb. 23	Do.
Iron and steel industry, La Ceiba district	Mar. 3	Alexander K. Sloan, consul at La Ceiba.
Railroads and railroad construction in district	Mar. 6	Do.
MEXICO.		
Agricultural products of the State of Jalisco, 1921	Feb. 9	A. J. McConnico, consul at Guadalajara.
Mayors of municipalities asked to aid in road construction	Feb. 13	Francis J. Dyer, consul at Nogales.
Proposed new railroad for Sonora	Feb. 21	Bartley F. Yost, consul at Guaymas.
Oyster beds at Guaymas	Mar. 2	Bartley F. Yost.
New railroad promised on west coast	Mar. 3	Francis J. Dyer.
Lower California cotton crop	...do....	Walter F. Boyle, consul a Mexicali.
New international bridge between Laredo, Tex., and Nuevo Laredo.	Mar. 7	Harry L. Walsh, consul at Nuevo Laredo.
Proposed automobile highway between Ciudad Juarez and Mexico City.	Mar. 18	John W. Dye, consul at Ciudad Juarez.
PANAMA.		
Iron and steel industry	Mar. 6	Julius D. Dreher, consul at Colon.
Educational courses in schools in Panama	Feb. 15	George Orr, consul at Panama City.
Law regarding manufacture, inspection, and operation of steam boilers.	Feb. 25	Do.
January report on commerce and industries	Feb. 28	Do.
PERU.		
Foreign trade statistics for 1920	Feb. 8	Claude E. Guyant, consul in charge at Callao-Lima.
SALVADOR.		
Statistics regarding maritime movements in ports of El Salvador	Feb. 1	Lynn W. Franklin, consul at El Salvador.
Inheritance tax in El Salvador	Feb. 10	Do.
Public control of privately owned forest lands	Feb. 18	Do.
URUGUAY.		
School gardens for Uruguay	Feb. 3	David J. D. Myers, consul at Montevideo.
Agricultural extension work in Uruguay	Feb. 8	Do.
New submarine cable for Montevideo	...do....	Do.
Municipal owned hotel at Carrasco	Feb. 14	Do.
VENEZUELA.		
Report on mineral deposits and industries	Feb. 7	Wm. P. Garrety, consul at Puerto Cabello.
Decree regarding importation of goods exempt from duties	Feb. 15	Thomas W. Voetter, consul at Caracas.
December report on commerce and industries	Feb. 18	S. J. Fletcher, vice consul at La Guaira.
National annual report on commerce and industries for 1921	Feb. 20	Do.
Market for manufacturers of rubber	Feb. 28	John O. Sanders, consul at Maracaibo.
Lumber imports at La Guaira	Mar. 3	S. J. Fletcher.

BOOK NOTES

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(Continued from May.)

UNITED STATES.

Address of the president of the United States to the Congress, December 6, 1921. Washington, G. P. O., 1921. 15 p. 8°.

Administration of dependencies. A study of the evolution of the federal empire, with special reference to American colonial problems. By Alpheus H. Snow. New York and London, G. P. Putnam's Sons, 1902. vi, 619 p. 8°.

American philosophy of government. Essays. By Alpheus Henry Snow. New York and London, G. P. Putnam's Sons, 1921. iii, 485 p. 8°.

Annual report of the Secretary of the Treasury on the state of the finances for the fiscal year ended June 30, 1921. Washington, 1921. viii, 551 p. 8°.

Biennial survey of education 1916–1918. In four volumes. Vol. 1–2. Bureau of Education. Washington, 1921. 8°. 2 vols.

First Pan-Pacific Press conference, Honolulu, October 21, 1921. Program and proceedings. Pan Pacific Union. 95 p. 8°

Handbook of the library of the association of the bar of the City of New York. Containing a brief sketch of its history and present contents. New York, prepared by the Library Committee, 1921. 22 p. 8°.

Message of the President of the United States transmitting the budget for the service of the fiscal year ending June 30, 1923. Washington, 1921. lxiv, 48, 1056, p. 4°.

Proceedings of the United States National Museum. Volume 58. Washington, 1921. viii, 692 p. 8°.

Report of the Commissioner of Education for the year ended June 30, 1921. Washington, 1921. 42 p. 8°.

Report of the Librarian of Congress and report of the Superintendent of the Library Building and Grounds for the fiscal year ending June 30, 1921. Washington, 1921. front. 207 p. 8°.

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Report of the Secretary of the Smithsonian Institution for the year ending June 30, 1921. Washington, 1921. 119 p. 8°.

Special libraries directory. Edited by Dorsey W. Hyde, jr., Washington, D. C., Special Libraries Association, 1912. 123 p. 8°.

Who's Who in the nation's capital 1921–22. First edition. Washington, D. C., The Consolidated Publishing Company, 1921. xi, 647, (1) p. 8°.

URUGUAY.

Contribución al conocimiento de los minerales de manganese en el Uruguay. Por A. Llambías de Olivar. Montevideo, Imprenta Nacional, 1921. illus. 36 p. 8°.

Memoria correspondiente al 5° ejercicio 1920–1921. Administración Nacional del Puerto de Montevideo. Montevideo, Talleres Gráficos A. Barreiro y Ramos, 1921. 15 p. 4°.

Síntesis estadística de la república oriental del Uruguay, Junio de 1921. Dirección general de estadística. Montevideo, Imprenta Nacional, 1921. 32 p. 8°.

VENEZUELA.

Alocución del General Juan Vicente Gómez, 19 de diciembre de 1920. 6, (1) p. 8°.

La campaña de Carabobo. [Por] Vicente Lecuna. Caracas, Tip. Cultura Venezolana, 1921. maps. 35 p. 8°.

Centenario de Carabobo. Discurso pronunciado por el Dr. Vicente Dávilla en el Panteón Nacional el 5 de Julio. Caracas, Imprenta Bolivar, 1921. 22 p. 8°.

Juicio Sosa Altuna Gonzalez Gorrondona. Caracas, Tip. Cultura Venezolana, 1921. 125 p. 8°.

Viejos cantos y viejos contores. Compilación de varias composiciones, en su mayor parte desconocidas u olvidades, con notas históricas y literarias. (Contribución al folk-lore Venezolano). Por José E. Machado. Caracas, Tip. Americana, 1921. xxviii, 122 p. 12°.

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ARGENTINE REPUBLIC.

Anuario de estadística de la provincia de Tucumán correspondiente al año 1919. Tucumán, Imp. Prebisch & Violetto, 1921. xxi, 372 p. 4°.

Iberos y Euskaros y la misión civilizadora de la Iberia en tiempos prehistóricos. Por el Dr. Adolfo Doering. Del Boletín de la Facultad de Derecho y Ciencias Sociales de la Universidad Nacional de Córdoba. Tomo 1, No. 2. Córdoba, Academia Nacional de Ciencias, 1921. illus. 131 p. 4°.

La influencia hispánica en los yacimientos arqueológicos de Caspinchango (Provincia de Catamarca). Por Salvador Debenedetti. Buenos Aires, Imprenta y casa editora "Coni," 1921. illus. 46 (1) p. 4°.

Memoria de la Contaduría General de la Nación. Anexo a la Memoria del Ministerio de Hacienda correspondiente al año 1919. Buenos Aires, L. J. Rosso y Cía., 1921. xiii, 714 p. 4°.

Memoria del Ministerio de Marina correspondiente al ejercicio 1920–1921. Buenos Aires, 1921. fold. tables. 34 p. 8°.

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Nueva ley de alquileres. Sancionada por el H. Congreso y promulgada por el P. E. con la ordenanza municipal de desinfección de las casas desocupadas, y la ley de sellos nacionales. [Buenos Aires], Editada por la "Casa Impresora," [1920]. 12°.

Urquiza el juicio de la posteridad. [Por la] Comisión Nacional del Homenaje. Buenos Aires, Imprenta y Casa Editora Coni, 1921. 4°. 2 vols.

BOLIVIA.

Covenio celebrado entre el supremo gobierno de Bolivia y la Ulen Contracting Corporation para la construcción del alcantarillado en La Paz y Cochabamba. La Paz, Lit. e Imprenta "Moderna," 1920. fold. tables. 101 p. 12°.

A port for Bolivia. By Señor Ygnacio Calderón. With an editorial from the New York Commercial, by Dr. W. E. Aughinbaugh. 6 p. 8°.

El tratado secreto de 1873. Su documentación. [Por] J. M. Echenique Gandarillas. Santiago de Chile, Imprenta Cervantes, 1921. 144 p. 8°.

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Annual Bulletin published by the American Chamber of Commerce of Santos, Brazil, 1921. illus. 96 p. 4°.

Brazilian tales. Translated from the Portuguese with an introduction by Isaac Goldberg. Boston, The Four Seas Company, 1921. 149 p. 8°.

Geografía económica del Brasil. Por Jorje B. Crespo. Buenos Aires, Talleres Gráficos del Instituto Geográfico Militar, 1919. illus. map. xx, 387 p. 8°.

Memorias do Instituto Oswaldo Cruz. Anno 1921. Tomo XIII, Fasciculo 1. Rio de Janeiro, Manguinhos, 1921. 140, 88 p. 8°.

Outros olhos. Novela de Mario Sette. 2ª edição. Recife, Edição da Casa America, 1921. 49 (7) p. 12°.

Revista do Museu Paulista. Tomo XII. São Paulo, Typ. do "Diario Official," 1920. illus. 492 p. 8°.

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